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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

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MINUTES OF EVIDENCE

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TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

FIRST DAY

WEDNESDAY, 1ST MAY, 1935

WITNESSES—

ON BEHALF OF THE LEAGUE OF NATIONS UNION:—
The Right Hon. VISCOUNT CECIL OF CHELWOOD, P.C.,
Miss K. D. COURTNEY,
Colonel DAVID CARNEGIE, C.B.E., J.P.,
Mr. H. S. SYRETT, C.B.E.

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LONDON

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1935

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE
TAKEN BEFORE THE
ROYAL COMMISSION ON THE PRIVATE
MANUFACTURE OF AND TRADING IN ARMS

FIRST DAY

Wednesday, 1st May, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Sir KENNETH LEE, LL.D.

Dame RACHEL E. CROWDY, D.B.E., LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Sir THOMAS ALLEN.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Chairman: Before asking Lord Cecil to give his views, which he has kindly come here to do, there are one or two matters that I want to mention which deal mainly with procedure.

The first thing I want to say is this: Without explanation it may seem that possibly an undue length of time has elapsed between the date when we were appointed and to-day, our first sitting. The explanation is this, that all the members of the Commission were not in this country until the 5th April, and to-day is the first day upon which any of those whom we have already invited to give evidence has been prepared to come and lay that evidence before us.

The second thing I want to say is this: All our meetings to take evidence will as far as possible be held in public.

The third thing I wish to say is this,—it has reference to the appearance of counsel: It is, I think, well established that counsel have no right of audience before a Royal Commission such as this; they only appear, if at all, by leave of the Commission and take such part in the proceedings as the Commission authorise. Any application to appear by counsel must be made to the Secretary, who will bring the application before the Commission, and the Secretary will convey the decision of the Commission to the applicant.

There is another matter upon which I would also desire to announce the decision of the Commission. In some of the statements of evidence which it is

intended to lay before the Commission it appears that the witness proposes to give the names of persons or companies as having been guilty of conduct deserving of censure in connection with the manufacture of and trading in arms, without attempting to give evidence in support of the allegation. The Commission intend to deal with this question as follows, namely: In the case of firms and individuals resident and carrying on business abroad, and of transactions taking place wholly abroad, it is clearly not practicable for the Commission to carry out any satisfactory investigation of allegations that may be made. The Commission, however, will not decline to allow witnesses to cite, in support of an argument, cases in this category which have been the subject of public allegation or report. The Commission must, however, exercise their own judgment as to the importance to be attached to such allegations. In the case of allegations against a firm or individual resident and carrying on business in this country, and where, therefore, the Commission is in a position to inquire into the matter, and the firm or individual can give any explanation of the circumstances which they desire to give, the Commission is prepared to receive particulars of any such allegations and will inquire into them if they consider them relevant to their Inquiry. This ruling does not, of course, limit or affect the general inquiry which the Commission propose to make into the question of the manufacture of and trade in arms.

The Right Honourable Viscount CECIL OF CHELWOOD, P.C., representing the League of Nations Union, called and examined.

1. *Chairman:* Lord Cecil, you have been good enough to come and give your views to us, and I understand that you prefer to give them in your own way rather than by way of question and answer?—I am entirely in the hands of the Commission. I thought that perhaps it would save your time if I made a general statement first, and then, of course, any member of the Commission can ask me any questions they desire.

2. Yes, that will be convenient.—In the first place I want to make quite clear what is my position. I come here primarily to represent the League of Nations Union. You have had a statement* handed in by the League of Nations Union as to the attitude of the Union on these matters. That is the expression of the views of the Executive Committee of the Union as a whole, and I think I may say that the whole of the hundreds of thousands of members of the Union would be broadly in agree-

ment with it. I propose in the observations that I am going to make to the Commission, if they will allow me to do so, to state my view of the case, and if it differs from the printed document that has been handed in, then the Commission must understand that I am not pledging the Union as far as those observations are concerned: I am only pledging myself.

As I see it, the general case rests largely upon public opinion in this matter. The Commission will have had in the printed statement the observations made by Lord Halifax recently, and I am going, if I may, to read them again, because they do seem to me to state with very great accuracy the general view which is held in this country on this subject, as far as I have been able to ascertain it. Lord Halifax said:

" . . . this is one of the questions that arouse a very sincere and very profound feeling in the minds of our people. . . . Rightly or wrongly, . . . the great majority of them . . .

* See Appendix, pp. 28-32.

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[Continued.]

conceive this question of the private manufacture of and trade in arms to be directly connected with the great issues of peace and war, on which they feel more deeply and vehemently than upon anything else; and, therefore, regarding war, as they do, as the greatest evil to which the nation can be exposed, and regarding it indeed as only justifiable in cases of ultimate and extreme national necessity, they are . . . disposed to regard the preparation of the implements of war as too high and too grave a thing to be entrusted to any hands less responsible than those of the State itself, fearing any intrusion into so dangerous a field of any interests less imperative than national security and national necessity.*

I believe that to be an accurate statement of public opinion on this matter and in support of that view I may, perhaps, point out that the League of Nations Union—which, of course, has given a very great deal of attention to it—resolved, as early as December, 1933:

“That it is contrary to the public interest that the manufacture and sale of armaments should be carried on for private profit.”

That is their view, and recently the Union, in common with a number of other Societies, has been holding, as no doubt the Commission is aware, what is called a Ballot; that is to say, a vote by a very large number of people. The actual question submitted was: “Should the manufacture and sale of armaments for private profit be prohibited by international agreement?” and on that question up till yesterday—the Ballot is still going on and will not be absolutely completed for a few more weeks, because there are some parts of the country which have been a little later than we expected—practically 7,000,000 votes were given—6,964,000 in fact—and of those approximately 6,500,000 were affirmative and 490,000 were negative. So that there was a vote of about 93 per cent. in favour of the view that the manufacture and sale of armaments for private profit ought to be prohibited by international agreement. I think that probably more information on that point could be given; but that is all that I desire to say about it.

Now as to foreign opinion: The most striking expression of that, I think, was contained in the statement made by a great demonstration of ex-soldiers representing the two great continental associations of ex-soldiers, what are called the C.I.M.A.C. and the F.I.D.A.C. I need not trouble the Commission with the translation of those initials. They do represent a very large body—I believe as many as 8,000,000 members—and they attended at Geneva to represent their views to the Disarmament Conference. Five thousand attended the demonstration and 700 of them waited by deputation upon the President of the Disarmament Conference and presented, among other things, a resolution stating that:

“The ex-service men and war victims, speaking in the name of the above two organisations, which comprise 8,000,000 members, have adopted the following resolutions,”

and this was one of them:

“Material disarmament should include the suppression of private manufacture of, and private traffic in, arms, together with effective mutual international control.”

That was the expression of their view, and on two occasions the International Federation of the Associations for the League of Nations have passed resolutions in the same sense—one in June, 1933, which perhaps I ought to read. I need not read the whole of it; the substance of it is that private armament firms should not be permitted to manufacture or to retain stocks unless they have received

orders from governments and have been authorised to execute these orders by a single official organisation established by the State for the purpose of controlling the production, sale and export of arms, and that such orders should be made public under the authority of the Permanent Disarmament Commission. In 1934, the following year, they passed a shorter and, I think, clearer resolution. The meeting was held at Folkestone, and there were present representatives of some 20 countries. The list contained practically all the important countries—Austria, Belgium, China, Czecho-Slovakia, Denmark, Estonia, France, Germany, Great Britain, Greece, Hungary, Italy, Japan, the Netherlands, Poland, Roumania, Switzerland and the United States of America. The resolution was:

“The whole Federation is agreed that the manufacture and sale of armaments for private profit is a great evil and ought to be suppressed. Many delegations believe that the only way of doing this effectively is by the complete suppression of manufacture and traffic in armaments by private enterprise; others reserve their opinion on this point, without diminishing their adherence to the main principle above stated.”

I ought, perhaps, to explain that these Associations in foreign countries are, some of them, run on the same lines as ours, that is to say they are purely private organisations, but a good many of them have a more or less semi-official status; that is to say, the State provides part of the funds on which they work, and they do feel bound at any rate not to transgress the general views of the governments of their countries. I might add to that—though it is, perhaps, of less importance because it was a minority decision of what is called the Temporary Mixed Commission, the Committee of the League of Nations which dealt with these subjects before the Disarmament Conference—that there was as early as 1924 an opinion expressed that there ought to be prohibition of private manufacture, but it was only adhered to by the French, the Dutch, the Swedish, and, I think, the Polish representatives.

To my mind the most important fact about this matter is that when it came to be considered at the Disarmament Conference, representing, as you are aware, some 60 countries, there was no question at all—as far as I have been able to read the proceedings of that Conference, but Miss Courtney, who is here, will be able to tell you better than I can exactly what happened—in the mind of any single representative, that the present system ought not to be allowed to continue. There was a difference of opinion as to whether the remedy should be by State control of existing armament manufacturers or by the actual purchase and taking over of armament manufacture, but I do not gather that there was any dispute that one or other of those two remedies ought to be adopted. I venture to submit that that is rather an important matter for the Commission to consider, because it looks as if the Commission will have to consider first, not whether anything should be done, but which of those two remedies should be adopted. Of course, they are quite free to say they do not agree, but it is to my mind an important matter.

That is, as I understand it, the general public opinion of the world on this subject. Though I have no doubt other facts could be brought to your notice, I think they would confirm that general view. I should just like to add that this is not a small matter. We are dealing with very important and powerful interests. That, of course, cuts both ways. There is no doubt at all that the armaments industry is a very important one, exercising a great deal of influence in a number of countries throughout the world. Taking our own case, the great organisation of Vickers, in one of the documents set out in

* House of Lords: Official Report, 27th March, 1935, Cols. 987-8.

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[Continued.]

the Annex to the League of Nations Union Statement, Note C, Document 11, you will find a statement of royalties received by an American company from Vickers, Limited, and firms licensed by Vickers, Limited, and among them is the Mitsubishi, a big firm in Japan, there is the Vickers firm in Holland, and another one in Holland called the de Schelde, the Vickers firm in Australia, a firm in Spain and probably in other countries. In addition to that I was looking at a book which has been published on this subject. I cannot pretend to have verified the statements; but you will find at pages 80-81 of this book, which is called "Merchants of Death", a little diagram. I only cite it because it is a convenient way of stating the point that I am trying to make. That diagram shows the various connections of this great firm. Apart from that, of course, there are very great firms on the continent, the greatest of them being Schneider-Creusot, and Krupp, in Germany, and a number of American firms. You will find that these firms and Vickers and others have a number of international agreements with one another affecting, not the whole, but part of their trade, regulating prices—I am not making any criticism of it, this is merely to show the extent of the organisation—and districting areas for the purpose of sales, zoning I believe is the term commonly used. You will find these firms set out in various documents cited in that Note C which I mentioned, if you care to refer to it, but as far as I am concerned I am prepared to assert that those documents show quite conclusively the immense extent of this organisation all over Europe and America.

It is not only connection with one another which is important. The actual organisations, very properly from their point of view—I make no criticism at all—naturally get on to their boards the most influential people that they can find—in many cases, in this country, ex-officers with special knowledge of the matter, and in foreign countries, bankers and so on; in fact, anybody who is likely to be of service to them in recommending their trade. I do not know whether the Commission would think it worth while examining that. I am afraid I cannot help them any further, except by just indicating that that is so.

In addition to this, they have very great connections with the Press. I have no evidence that there is any direct connection between those firms and the Press in this country—there may be or there may not be; I do not know—but abroad there certainly is. As the Commission is probably aware, two or three years ago the great steel interests in France, who are, of course, very largely concerned with armaments, bought up two of the best-known Paris papers, the *Journal des Debats* and the *Temps*, and after that transfer the policy of those papers changed, particularly, I believe, in the case of the *Journal des Debats*, which up to that time had been a great supporter of M. Briand. The policy of understanding became a policy of national armaments, and things of that kind. I believe that to a very large extent that has been true of the *Temps* also. You will not, of course, forget that certainly in the old days—I do not suppose it is true now—Krupp assisted or controlled at least three newspapers in Germany. I forget the names of them but they are set out in a variety of these books if you care to investigate them. I remember very well a speech of M. Briand, which he delivered to some women's organisations on this question—a very outspoken speech, which got him into a good deal of trouble, I believe, but his position at that time in France was so overwhelmingly strong that it did not much matter what anybody said about him. He used this strong phrase, which has been often quoted:

"Articles against peace are written with pens made of the same steel as cannon and shells."

I do not want to stress this aspect of the case too much but I think it is conceivable that M. Briand had in mind not only the question of the direct

acquisition of the papers in France and elsewhere, but also the immense influence which great industrial organisations necessarily have—I will not say in altering, certainly that would not be true in this country—in modifying the expression of opinion on any particular question, in view of the great advertisement revenue which they control. And, of course, that becomes more true by reason of the fact that many of these armament firms deal—as has been pointed out by the British Government—with a great number of other things besides armaments. It may have been that which M. Briand had in his mind, or it may have been other circumstances attaching to the Paris Press, which are probably well known but with which I do not desire to deal any further. This difficulty was felt particularly by the continental members of the Temporary Mixed Commission as early as 1924. In the Convention that they drew up regulating the traffic in arms they proposed to put in certain provisions precluding armament firms from having any connection with the Press. On Pages 41-2 of this book—"Documents on the Traffic in Arms" published by the League of Nations Union—you will find that this was the proposal:

"The holder of a licence"—

that is, an armament dealer—

"must not be in a position to influence a newspaper, either by owning a sufficient proportion of its capital or by holding any post whatever in its offices. This measure shall apply equally to all directors, managers and high officials of the firm holding the licence. The holder of a licence must agree not to carry on propaganda of any kind relating to the war material for which a licence has been granted."

I believe I was a member of that Commission, but personally I was never very much in favour of that proposal, because I thought it could be evaded with the greatest ease by anybody who wished to evade it, by holding a share or interest in the name of somebody else. But it shows that even at that time there was a very great feeling in the matter. I mention these things, not with the view to making any particular attack on the armament firms, but to showing the immense strength of this organisation and the great power that it can use, if it desires to use it, for the forwarding of what it regards as its business interest.

I think it is the recognition of that state of things which has produced the very striking feeling to which Lord Halifax alluded. I venture to think that that feeling is based partly, no doubt, on a kind of emotional motive. There is in many people's minds—I confess I am one of them—a feeling that there is something exceedingly shocking in the idea that money is going to be made out of the sale of these instruments, the purpose of which is to cause the death or wounding of fellow creatures. I know it is said, and said with great truth, that if that is not done by private firms it will have to be done, more or less to the extent to which the countries ultimately agree upon it, by the governments of those countries. At the same time there does seem rather a difference between the conception that these weapons should be manufactured by or under the control of responsible governments for great public purposes and mainly for the defence of the country against invasion, and the conception that it should be a matter of bargain and sale and that the more armaments are sold the greater will be the profits of the industry.

That seems to many of us a very horrible state of things and, of course, it necessarily leads to conditions where you find armaments provided by some firms being used on both sides in a war. One instance that is often quoted was in the Boer War, when the Boers used very largely a gun which came to be known as the "pom-pom," a gun which,

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[Continued.]

I understand, was one of Vickers' manufacture, which no doubt was sold to the Boers in time of peace; but, I imagine, not very long before the war, because it was a new gun at that time. Of course many other weapons made by Vickers were used by the British Government. It seems to many people a very repulsive condition produced by this particular industry, without making any charge or attack on the individuals who are carrying it on.

A very recent example of that has occurred in the Chaco War between Bolivia and Paraguay, in South America. The finding of the Commission appointed by the League of Nations in 1934, which examined the question with a view to trying to find some settlement, contained this statement:—

"The armies engaged are using up-to-date material; aeroplanes, armoured cars, flame projectors, quick-firing guns, machine-guns and automatic rifles; the automatic weapons are available in great quantities, but the other arms are few. The arms and material of every kind are not manufactured locally, but are supplied to the belligerents by American and European countries."

Under the existing conditions of neutrality, that must have been by private firms and was, in fact, by private firms.

That is the emotional aspect of it. I hope the Commission will not regard it as a matter to be put aside, because it is that motive which, though not exclusively, is perhaps more responsible than any other for the very strong feeling that exists in this country. It is not only an emotional view. I think that in point of fact it is wrong in principle in a matter of this kind that great financial interests should exist in a country, which must be dependent on war and preparations for war, and that they should be in that matter probably—I would almost say usually—inconsistent with the general policy of the country itself, since the general policy, certainly of our country and, I believe, of almost all countries, is a policy of peace. I cannot help thinking that that is wrong in principle and that it produces bad effects. Taking it on the two sides, internationally and nationally, I do not think it is really open to doubt, that wherever you get tension in international affairs the value of the shares of armament firms goes up. That is inevitable. The demand becomes greater and the price rises. I have a quotation here from *The Manchester Guardian* of the 18th March last, just after the German announcement of conscription. It says:—

"The reaction of the Berlin Stock Exchange to-day to the conscription law was friendly and the heavy industries and others affected by armaments showed substantial appreciation in share values in a number of cases. In United Steel Works shares there was a rise of 2½ points and a turnover of 1,500,000 marks. A heavy business developed in shares of the Berlin Karlsruhe Company (known otherwise as the German Arms Works), which rose 7½ points, when business in them was suspended. For orders of over 2,000 marks in these shares only 50 per cent. of the demand could be fulfilled. The same day it was reported that the London Stock Exchange in gilt edge securities was adversely affected, and also the Paris Bourse."

I think that is a good instance of the conflict that must take place in these cases between the two interests. You will find a good many facts which confirm that view set out in Note B of the Annex to the League of Nations Union statement. I particularly draw the Commission's attention to the movement in the prices of aircraft shares, at the bottom of the third page. Indirectly that is confirmed by the great increase of export of the same class of goods and in armaments generally during the years 1933 and 1934. I think it is obvious that that must

be so. Obviously also it follows that reduction in armaments or peace talk must diminish profits of those firms; and consequently there is a suspicion that some of the armament manufacturers have been active in creating anxiety about these subjects. The statement was made in 1932 by Sir Herbert Lawrence, Chairman of Vickers,—a man of the greatest possible distinction and position,—that:

"Reductions in armaments, under the influence of public opinion, both in this and other countries, have affected adversely your Company's trading result."

In the Report of the Senatorial Arms Inquiry a letter is set out—of course I cannot say whether it is an accurate letter or not—a letter from Sir Charles Craven, of Vickers, to Mr. Carse, of the Electric Boat Company of New York, in which he says this:

"The Admiralty also promise us the order for H.M.S. Clyde; but in this latter case they will have the right to withdraw their promised order for the second ship if Geneva, or any other troublesome organisation upsets the large submarine."

I think you will find a good many more instances of that kind. There is a letter from the Electric Boat Company to Sir Charles Craven, in which they say:

"It is too bad that the pernicious activities of our State Department have put the break on armament orders from Peru by forcing the resumption of formal diplomatic relations with Chile. My friends advise me that this gesture means that all contemplated orders must go over until next year."

Again, in a letter of the 11th August, 1932, from Mr. Jonas, another agent of an American company, he says, with reference to the Chaco War, apparently:

"I immediately took a plane to Washington and visited both the Paraguay and Bolivia Legations. Unfortunately for us, however, it looks as if the trouble they are having is going to be settled amicably."

Mr. Jonas was not a correct prophet, but that is what he writes.

And, of course, in addition to those rather well-known cases, there was the case of Mr. Mulliner's activities before the War, at the time of the scare about the German fleet; and the Roumanian case, a deplorable one, where apparently armaments agents put about a great rumour that there was a concentration of Russian forces on the northern borders of Roumania, and induced the Roumanian Government to purchase large supplies. As soon as the contract had been concluded the Russian troops vanished from the scene; apparently they had no more existence than those which came over to this country at the beginning of the War. There is no doubt that all this tends to hamper the actual efforts for peace. I think there is very little doubt that necessarily the whole of the armament industry were in favour—obviously they must have been—of continuing the supply of arms to China and Japan during that period when war was either actually existing or was on the point of breaking out. I have already quoted the passage about the Chaco.

Undoubtedly there have been cases, how many I cannot tell, in which active steps have been taken by great armament interests to prevent the conclusion of disarmament negotiations. The most striking of those cases was the activities of Mr. Shearer. That is not a matter of speculation at all because, as no doubt the Commission are aware, Mr. Shearer was employed by certain great firms in America to prevent, I think one must say, the success of the Disarmament Conference, which took place in Geneva in 1927. Afterwards, he was not satisfied with the payment made to him by those

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[Continued.]

armament firms and brought an action in the American courts for larger payments and explained the energy and vigour which he had shown in taking steps to prevent the conclusion of that treaty. I was present myself at the negotiations for that treaty. I would not like to say for a moment that it was entirely Mr. Shearer's efforts that prevented the treaty being made, but it is undoubtedly true that the suspicion and doubt which existed as to the policy of the British and American Governments produced the kind of atmosphere which brings about the failure of international negotiations. I cannot help feeling that it would have been a decided advantage if Mr. Shearer had not been present at Geneva.

It is not only actual intervention in international affairs which produces these serious results. There is no doubt that the armament firms, very naturally from their point of view, use whatever influence they may have—possibly legitimate influence—with the governments of their own countries, to prevent any steps which will interfere with the success of their trade. I have already quoted to you M. Briand's opinion, which is, I think, very clear and definite. There has been a good deal of discussion as to what exactly is the attitude over here with regard to the relations between the British Government and British armament industries. I do not think they are different from what would be the relations between the British Government and any other industries. I think they are very much the same. Sir John Simon, speaking on the subject in the House of Commons on 8th November, 1934, stated quite clearly:

"— we never allow our diplomatic or consular representatives abroad to act as travellers or canvassers for armament firms—never. Our diplomatic help is given only when a foreign State has announced its intention to purchase from abroad. Then our service naturally does its best to secure that the British firms should get a proper opportunity."

I do not know whether that is the right or the wrong attitude to take, but it is evident that that attitude must mean a certain relation between the government of the day and the armament firms, in which it will be at any rate natural to surmise that the influence of the armament firms will be directed to prevent the carrying out of a policy which will injure their trade.

Another illustration—again I do not desire to make any criticism, except in regard to the system. As you are perfectly well aware, arms cannot be exported from this country without a licence, but with respect to aircraft, though, as we know, aircraft are potentially at any rate military weapons, there is, as I understand, a general licence given, so that there need be no application for special licences for export. No doubt that is done with the perfectly legitimate object of facilitating the growth of a trade which is more or less in its infancy, and it is desired therefore to increase the output of those manufacturers. I quite admit that that is a perfectly legitimate point of view. The only thing is that, when you apply principles of this kind to the sale of weapons of war, you are producing effects quite beyond and apart from the direct financial or commercial interests, effects which may be of a very serious character politically and with reference to the preservation of peace.

You will perhaps remember that in the course of the long-protracted negotiations dealing with China and Japan in the Far East there was a period in which the Government announced an embargo on all arms for either party. I did not think that a very effective measure, because whereas Japan had considerable means of manufacturing arms, China had very few, and an impartial embargo was bound to operate in favour of Japan. Whether that was so or not, in discussing this matter, the Minister—not Sir John Simon but Mr. Duff Cooper, who was at

that time Financial Secretary to the War Office—said:

"In a fortnight we took off the embargo, but during those weeks we lost a great many orders. China and Japan did not get less munitions because of our embargo, but the men in this country got less work, less food, less employment."

That is quite true, and as long as you have any unilateral action of that kind it is perfectly true that you may do harm to your people without doing good to the general situation. On the other hand, it is perfectly clear that if the Government desire, for broad political reasons, to do their best for the negotiation of peace, it is a serious matter if they have to face, in addition to all the other difficulties, the difficulty that may be caused by great industries in this country which may be affected by their action.

That is, broadly speaking, the case. I have tried to put before you—I am afraid imperfectly—the evils and dangers which accrue from the present system. There will be other witnesses called before you, who will be able to give you many more details than I have of particular cases of injury that have accrued. To my mind it does not really require a great deal of labouring, because it seems to me perfectly plain that if you have great financial interests whose profits depend upon the existence of a state of tension or hostility between foreign countries, you must have, therefore, a great interest which will be impaired by a pacific policy and will benefit by a policy which is not pacific. That seems to me a very serious state of things. Possibly evidence will be given to you, but I am not going to trouble you with it, of allegations which were made in the American Inquiry and elsewhere of disreputable methods. I do not think from my point of view that has much to do with it. The fact that a particular agent of a government has been bribed is not the point. The point is whether they were working for the sale of arms. Whether they did it reputably or disreputably does not matter to my mind. Therefore I am not going to bother you with that. I have no doubt you could find evidence of similar things going on in a great many other trades dealing with governments.

Although I would not make the same kind of criticism about this point, there is no doubt that the existence of these firms does promote the active perfection of the various weapons. We have all seen it, of course. It is not a question of increasing the number, it may not even be so much a question of increasing the cost, but of improved weapons; to take an ancient instance, the substitution of the rifle for the smooth bore. The moment one country does it, every country has to do it; it is the same with a great many weapons which in our lifetime and in the last few years have been invented. You can scarcely take up a paper without seeing an account of some perfection, of some improvement—if we are to use that phrase—of the means of slaughter, which has been adopted in one country and is hastily adopted in others. That undoubtedly tends to a great increase of the national bill for these things. Perhaps that would not seem to be a matter of great importance, except that the cost of armaments, in my view, is one of the great causes of war, or at any rate of hostility. I think one saw that very clearly before 1914. Germany, for instance, was at that time arming against France, and perhaps against other countries, and undoubtedly the burden was felt very severely. True, it was a government which was not, of course, as despotic as the present Government of Germany. It had a Parliament sitting, and the various opposition parties were prepared to make capital against the Government on all those questions. The result was that you had undoubtedly a great deal of criticism as to the rising expenditure on armaments by Germany, and this is one of the important aspects of the whole of this question—this had to be met by a vigorous propaganda by the Government, showing the neces-

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sity for the increase of cost. To do that they had to explain what they were afraid of, and that meant perpetually holding up as a possible danger to the people of the country the action of some foreign country. I think that aspect, which of course is part of the general case for the reduction and limitation of armaments, has its importance from this point of view, that anything that increases the cost of those armaments, as the competition between private firms must increase it, is one of the causes of this war propaganda, which must go on as long as the cost of armaments is as heavy as it is in many of those countries, and indeed in our own. I do not want to elaborate that but I am sure the Commission will be able to recall many instances of the kind of thing that has taken place in all countries, our own included, as the inevitable reason which any government must give for any increased expenditure on armaments. That seems to me the reason why control or nationalisation is essential.

I want to say just a few words about the answers that are commonly made in this matter, because I think they ought to be dealt with. The first answer that I should like to deal with is the one that suggests that the existence of private manufacturers is essential to the national defence, because in time of war it gives them opportunity for expanding rapidly a country's armaments; it is, as it were, a kind of reserve of strength. These private manufacturers have to keep their whole machinery in order, to carry on their own trade, and that can be diverted to the use of the government of the country in time of war, and that greatly increases their strength. I recognise that that argument, which is used strongly against nationalisation, is not applicable to control, because, of course, if you have control, the private manufacturers exist, and whatever advantage can be gained from their existence will remain. I should like to say a word about that argument in itself. This reserve is not really the result of private manufacture, but the result of exports. It is the fact that, as far as it is valuable at all, this reserve of strength is there because those firms are in the habit in peace time of supplying not only the government of their country but other governments. That is to say, it is export trade, which you can divert on the outbreak of war to satisfy the immensely increased demand which will arise in the country itself. I do not myself see that it would be altered at all if the factories were transferred from public to private ownership. I presume that in that case also—I will deal with the questions arising out of international law in a moment, but I am now speaking apart from them—there would be an export trade from these factories; they would exist not only to satisfy the legitimate demands of this country, but the legitimate demands which they were in the habit of fulfilling abroad. It is true that in such an arrangement it is reasonable to suppose that the government would not be so keen to maintain an export trade as would a private individual; that is possibly true. But I would reply to that, that as far as it is true at all, it is really an argument in favour of putting the matter in the hands of the government. In the public interest of this country and of the world you do not want a very active promotion of trade in arms. Where countries are actually in need of buying arms for their own defence, some means must, no doubt, be given of supplying them; and if they have no factories of their own they must buy from outside. I agree. But taking it broadly, there is no advantage, and very grave disadvantage, in pressing them to buy arms beyond what they think are necessary for their own demands. Therefore, though I think it is probably true that if the trade were not in private hands it would not be pushed with such energy as it is now, on balance that is a great advantage.

I am dealing with the view that these changes should be made internationally. I will say a word

as to whether, if you cannot get any international improvement, there ought to be an improvement in this country; but broadly speaking the argument that I am putting forward here is in favour of an international agreement for dealing with this question of private manufacture. And if that is true, the reserves of all other countries, so far as they are affected, would be equally affected with the reserves of our own country. But I would go a little further even than that. It is extremely doubtful whether this reserve argument has any very great value in time of war. There is one witness whom I think you might like to hear on that point—Mr. Syrett, who was engaged in the supply of munitions during the War—but we all remember that in point of fact very shortly after the beginning of the War the Government found that it was impossible to rely on private individuals and firms to supply the arms they required, and the whole of the munition business was taken over by the Government, for the reason that the reserve turned out to be inadequate. It was a mere flea bite compared with the demands that were made by the Great War. In addition to that, you have already had your attention called to the inquiry made by Mr. McKinnon Wood's Committee directly after the War, in which that point, I think, was very well brought out. I speak with only secondhand knowledge of that subject. I hope the Commission will have the opportunity of seeing all the records that exist on that point.

Chairman: I will say a word about that presently.—You know much more about that than I do. I will say no more about it. It is interesting to observe that that was confirmed by an observation made by M. Pierre Cot when he was here a little while ago. M. Pierre Cot was for some little time Minister for Air in France and he knows what he is talking about. He is very strongly in favour of the abolition of private manufacture. He made this observation:

"The Minister of Finance, M. George Bonnet, caused an inquiry to be made on the financial conditions under which nationalisation could be effected. The inquiry showed that the suppression of the private manufacture of arms would not involve any extra burden on the taxpayer. It would be possible to buy out the shareholders of the interested firms by means of bonds. The interest and amortisation of these bonds would be amply covered by the savings made by the State manufacturing these arms directly."

I think that was really the result of the McKinnon Wood Inquiry, that when it came to manufacture on a large scale it was cheaper for the Government to do it themselves.

The next argument that is made is that arising from the laws of neutrality, with which, Sir, you are very familiar. As I understand it, the difficulty is this, that under the laws of neutrality a government as such cannot supply arms to a belligerent: that would be a breach of neutrality. On the other hand, any private firm in the country can supply those arms, and therefore as long as there are private manufacturers in existence the smaller countries, which have not arms manufacturers of their own, can rely on supplies from those private sources, whereas they would not be able to rely on supplies from a government. It is interesting to observe that on the whole the Disarmament Conference has shown that there is very little feeling on the part of the smaller States in favour of this view. No doubt if you did this you would have to have some change in international law and allow the supply of one government to another in case of war. I will come to the question of who would be neutral in future wars in a moment, but you will find in this little hook—"Documents on the Traffic in Arms"—on page 27, part of a statement made, not by the smallest States, but by the Danish,

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French, Polish and Spanish delegations. They say this, and I think it is rather a good statement and very much to the point:

"The fear of the non-producing States that the abolition of the private manufacture of arms would be detrimental to their interests is unjustified, as even in the present state of affairs arms are only consigned by a private factory with the assent of the Government on whose territory that factory is situated."

That, of course, is true whether there is a regular system of licences or not.

"At the present time the control over all exports of arms and munitions from their territory exercised by producing States in the sole interests of their national policy leads to the result that the non-producing States derive no benefits from the system of private manufacture. The abolition of this system would not therefore modify the situation of non-producing States in any respect."

I should think that is probably more true, though not absolutely, in the case of continental States than in the case of our own. I do not know, but I should not think that our Government control the export of arms very often in the interest of their policy, though they certainly do to some extent.

"There is already a tendency among non-producing States to create arms factories on their own territory with a view to making themselves independent of foreign countries in respect of the organisation of their national defence. This policy has nothing to do with the problem of the abolition of private manufacture, as from the point of view of a non-producing State it is immaterial whether it is dependent in time of peace upon supplies obtained from the factories of a foreign State or upon supplies from factories which, though private, are in practice under the control of a foreign State. Under the Hague Convention, belligerent States are only entitled to obtain new stocks from neutral private manufacturers and are prevented from procuring them from neutral State enterprises."

Of course, there would have to be some change in international law if the States as a whole took over the business of making weapons of war; but I venture to submit that the present condition of international law is extremely arbitrary on this point. A private individual cannot, without breach of neutrality, sell a warship to a belligerent State. That amounts technically to an "expedition," and at any rate in the *Alabama* case we had to pay £3,000,000 for allowing the export of a warship. On the other hand, I observe a movement in the United States at this moment, just as there was before the War, to prohibit export, even from private sources, to a belligerent, and that change might well take place. But in any case there seems to be no difficulty in making the necessary change in international law if the proposal that I have made were accepted.

In dealing with this question, it is, of course, right to consider the great change that must result from the adoption of the new system in international affairs. If the League system were in full operation there ought to be no neutrals at all; everybody is bound under the League system to go to the assistance in some form or another of the country which is the victim of aggression; therefore they would be bound not to supply the aggressor. On the other hand, they would be quite free to supply the country that was the victim of aggression and, indeed, it would be their duty to do so under the Covenant. In fact, at this minute we are, I understand, making a great effort to avoid supplying Paraguay with armaments. We are supplying Bolivia, because we have arrived at the conclusion that at this moment Bolivia is the country which is being

attacked and Paraguay is the aggressor. That would apply, of course, not only to State manufacture but to private manufacture also. So that the whole conception of neutrality undoubtedly will have to be reconsidered in the light of the new great international treaties. Certainly if the League system becomes established and accepted all over the world, as I hope it will be, and as I think probably it will, the question of neutrality will scarcely arise.

3. *Chairman*: Are you passing from the point of international law?—I was going on to the remedies now.

4. The only point I wanted to elucidate was this: On the second page of your printed memorandum it is stated, "They would also contend that the objection to the establishment of a State monopoly which arises from the present state of international law relating to neutrality could be overcome by the answer contained in the same joint memorandum and by other considerations of a like nature." I do not follow that. I could not find the answer. What we had in mind was the passage at the bottom of page 28 and the top of page 29 of this book*. It does not really come to very much. This is what it says:

"The problem of neutrality cannot, however, be considered solely in the light of the Hague Conventions irrespective of the other international agreements, more especially the Covenant of the League and the Pact of Paris, which have profoundly altered the legal and moral aspects of this problem. Can States bound by the Covenant of the League or the Pact of Paris use their neutrality as a pretext for treating a State which has resorted to war contrary to the aforementioned instruments, and a State victim of an aggression, on a footing of equality?"

I read that as intended to convey the kind of argument that I put to you in a rather more developed way just now.

5. *Chairman*: I quite understand what you have told us and I now follow what you say.—Thank you very much. We now come to this question of remedies. The latest and I think most effective scheme of control that has been proposed is what is called the American scheme, and again I ask you to hear Miss Courtney on any details of that scheme. Broadly speaking, that provides firstly—and this is much the most important thing, because it goes to the root of the whole matter—for the responsibility of national governments. Whether it is done by private individuals or in any other way, the government are to be responsible, and they must institute such a system of licences, both for manufacture and sale, as will make that responsibility a real one. The second great proposal of the American scheme is the creation of a Permanent Disarmament Commission. As no doubt the Commission is aware, that is a proposal that has been made for a long time past as part of any disarmament treaty. Everybody recognised that whatever you achieved in the way of international disarmament, it would have to be developed in some way, and for that purpose an organ for its development must be created, and that was the reason for the Permanent Disarmament Commission. But it was always imagined by those who were in favour of that Commission that among other functions it would have the development of any permanent disarmament treaty, and among its duties would be that of supervising this international trade in arms. I suppose the Americans felt that it was open to some doubt how far the full treaty would succeed, and therefore they propose that whatever happens you should set up a Permanent Disarmament Commission for the purposes of this part of its duties, and, of course, it can be used for other purposes

* "Documents on the Traffic in Arms."

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afterwards. Having set that up, there are to be returns made on the trade to this Commission, and the Commission are to have the right to send inspectors to examine and ascertain whether those returns in fact represent the truth about the matter.

Here I am in a little difficulty, because the proceedings of this Committee have so far been, I understand, nominally in private, but it is pretty well known what has happened in private, as usually happens in so-called private negotiations. The disadvantage is that there are generally two or three accounts of what has happened, instead of one. But it is understood that the British have proposed certain amendments, the most important of which is the abolition of inspection on the spot and the substitution for that of verification at Geneva. That is to say, all that the international authority would be enabled to do would be to receive returns from the respective governments as to what exports of arms were being made from each country, just take note of them, and, if necessary, I suppose, examine representatives of the country, who would merely produce their books to show that their statement was correct as far as those books went. I need not trouble you with it at this moment, but there is a dispute as to what exactly the returns are to consist of—whether they are to include the details of the export or only the general result of it; the amount in money and so on. That is one point. On this point I can only tell you what is commonly reported, that in fact these amendments are said to have received very small support besides our own from the point of view of numbers on the Committee. In one case I think they have received the support of one or two governments—the Italian, and perhaps the Japanese—and in the other the support, of an even less impressive character, of certain Asiatic states. That may or may not be true. I do not know. There was a suggestion that was made before the Sub-Committee sat, and therefore was made in public, that the Permanent Disarmament Commission should not be appointed and that some other machinery should be devised for that purpose. Then it is only right to add—though it has not so much to do with this particular point—that the British Government thought it desirable to have some provision made for facilitating an international embargo in cases where there was war. I am bound to say that in my judgment a good deal of the American draft would be better without the British amendments. I should certainly think, if you are to have any kind of returns, that merely to verify them at Geneva would be a very unsatisfactory procedure. I think it of great importance to get a Permanent Disarmament Commission appointed. I quite recognise that if you had a treaty of that kind, and in addition to that a disarmament treaty which fixed a limit both in numbers and value for arms for each country, then no doubt it would be a very considerable protection against the evils to which I ventured to draw your attention. Evidently, if there were no particular advantage to be gained by competition, since the countries' arms were limited both in number and in value, the danger of competition would be very much less; at any rate, it would appear to be so. Still, even as to that, as I have already pointed out, the competition in quality might remain, and whenever you have any competition in quality between the countries you have the dangers of canvassing and all the other dangers which must accrue when you have great financial interests engaged in a trade of this kind.

The other point that I would venture to mention about this question of control is this. It depends on a really efficient system of licensing, both for manufacture and export. In this country I have no doubt that such a system could be established; indeed to a very great extent it exists. But I do not feel at all satisfied that that would be true

of all countries. I think it extremely doubtful whether a system of licensing would be very successfully worked in every country. You have—as one, at any rate, of the members of this Commission knows far better than I do—a very elaborate system of licensing in connection with the sale of drugs. You have there, of course, all the conditions which make it effective, because you have a limit to the amount of drugs that may be bought by any country, and very strict control of the factories—which are, or may be, limited in number. My knowledge of the subject is very much less than that of some people, but I must say that such knowledge as I have rather indicates that very great difficulties, even in the question of drugs, have occurred. You have immediately a transfer of the factories from one country, where you have an effective system of supervision, to another, where it is hoped that you will have a less effective system of supervision. Those kinds of difficulties arise. I think the difficulties would be at least as great in the case of the manufacture of arms and, of course, if you did not have a limitation of arms it would be much more difficult to enforce any kind of effective licensing system. Undoubtedly, as long as great profits are to be made from a trade of this kind you will have, in some countries, a very great temptation to evasion; and I am afraid that that evasion would be successful in those countries where the system of government is either not so upright, or not so effective, as in this country.

Therefore, for that and other reasons, I personally approve very greatly the system of taking this matter into the hands of the various States. I do not propose to worry you with any description of how exactly that could be done. You will find a good description of one method of how it could be done in this pamphlet of the League of Nations Union, No. 359—"The Manufacture of Arms"—which, I believe, you have. You will find in Appendix III of that pamphlet a note by Mr. Noel Baker, in which he explains exactly how in his view the matter could be carried out. I am sorry to say that Mr. Noel Baker is at this moment forced to be away from England. I hope that before the Commission closes its business it will have an opportunity of hearing him, because he has made a very full and complete study of this question. There is a proposal as to how the transition difficulty and other difficulties can be overcome. I will not attempt to deal further with that. Colonel Carnegie, who is here, has given a good deal of attention to the subject, and will no doubt answer any questions.

I would refer only to one difficulty that has been raised about this matter, and that is the question of the definition of "armaments." It is said that it would be very difficult to confine nationalisation to armaments only. What are you to do about all the raw materials, and so on? I think the answer is rather well put at page 31 of this book, "Documents on the Traffic in Arms," in paragraph (9):

"The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms. The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destines it exclusively for military use."

You will have to have some definition of that kind whether you are going to proceed by control or by nationalisation. In the American proposals there are elaborate definitions of what exactly is meant by "armaments" for purposes of control, and whatever is meant by "armaments" for purposes of control would be equally applicable to "armaments" for purposes of nationalisation.

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I am sorry to have detained the Commission so long. I have nearly finished my observations. Broadly speaking, I would like to submit that the case for some drastic change in the present organisation of the industry is overwhelmingly made out and is not really disputed in any responsible quarter. I could have quoted statements of the present Prime Minister bearing that out. Without suggesting for a moment that the only cause of war is the operation of the armaments trade, because that would be a fantastic exaggeration, yet I do not doubt that it is one of the considerable obstacles to any system of world pacification, and that it is a very serious and important matter. Indeed, the appointment of this Commission shows that the Government is of the same opinion. Finally, I submit to you that as between control and nationalisation the broad point is this: That if you leave the manufacture and sale of armaments in private hands, the only motive that is, or perhaps ought to be, operative, apart from general rules as to decency and propriety of behaviour in particular cases, the only big motive must be the motive of profit. It is primarily the business of the directors and employees to make profits for their company; whereas if the supply is made by the government the question of profit becomes of minor importance. It is not absolutely excluded—no doubt they desire to carry on their business profitably—but it is a matter of minor concern. The main business of this government, and almost every government, must be the maintenance of peace and tranquillity in the world. That is, and must be, the chief interest of any government that knows its business in the present state of civilisation. Therefore, they will have to consider that aspect of the matter much more than the aspect of the matter which depends on successful trading. For that reason particularly it appears to me that it would be better if the government took over the whole business and took it out of private hands.

6. *Chairman*: Thank you very much. The first question I would like to ask you is this: You have from the first, have you not, been very much interested in the proceedings at Geneva, and have taken an active part in them?—Yes.

7. I think you were one of the draughtsmen of the Covenant, were you not?—Yes.

8. Looking through this mass of papers with which we have been supplied, I find also that at one stage you were chairman of a small committee appointed by this Temporary Mixed Commission to consider some proposals for limitation of armaments, which were brought forward by Lord Esher?—Yes.

9. I also find this, that you added a proposal, which was adopted by the Temporary Mixed Commission in this form: "No scheme for the reduction of armaments can ever be really successful unless it is general"—Yes.

10. That is still your opinion?—Certainly. From the point of view of the League of Nations, which is an international body, evidently no scheme for the reduction of armaments by one country is going to do the business.

11. And when you use the words "unless it is general," you mean substantially, by all the Great Powers?—Certainly.

12. Of course, we have not directly to deal with the question of limitation of armaments. What we have to deal with is this question of the control or prohibition of private manufacture. That is directly, is it not, a matter ancillary to the question of limitation?—That is my view.

13. I notice in the conclusion that is put forward on page 23 of your pamphlet No. 347, that your Committee go so far as to say this: "Whatever measures can be agreed upon for the control of the manufacture, purchase, sale and export of arms, it is of great importance that they should form an integral part of the General Disarmament Treaty." Do you agree with that?—Oh! yes, it is

of great importance. I would not like to be understood as saying that something of advantage might not be done by individual countries as far as the control of private manufacture is concerned.

14. That is what I am leading up to. The next thing which I want to ask you about is this: The question with which we have to deal, that is referred to in that passage, is one of great difficulty, is it not?—Yes, it is evidently of great difficulty.

15. And Lord Halifax, in the speech which you have quoted already, refers to it in this way: He says the Government were led to appoint this Commission for two reasons: First of all, because they realised the strength of public feeling—you have dealt with that—and also because they realised what I think the general public does not always realise, the extreme complexity of the problem and the issues that are bound up with it. Would you agree with that?—I think it is rather easy to exaggerate the complexity. I have not much doubt that if the governments of the world agreed that it was a desirable thing to do, it could be carried out without much difficulty.

16. Complexity involves the difficulty of getting everybody to agree, does it not?—It certainly involves difficulty, if it is to be done properly and effectively. I will not say you cannot do something individually, but to get it done properly and effectively involves agreement among certain of the larger producing countries.

17. I see that in this pamphlet, No. 347, your Committee say, on page 3: "The Committee has met on several occasions, and, having considered the problem in the light of all the relevant official documents issued during the Disarmament Conference up to the present date, is not able to recommend that the General Council of the Union should, at this stage, be asked to adopt a detailed policy on all the aspects of a complicated and delicate subject"?—Of course, this is earlier than the other pamphlet, No. 359, from which I quoted. No doubt there has been a certain progress of opinion in the Union. Indeed it is stated in our printed document that there is a difference of opinion as to whether control or nationalisation is the appropriate remedy, and in making my statement coming down on the side of nationalisation, although, I believe, I represent the great majority of the Union, I do not want it to be understood that I am pledging every member of the Union. I know there are some who strongly disagree; they think that control is the appropriate remedy. Certainly at the date that this pamphlet was written it was a matter of—I do not know what words were used then—great delicacy and difficulty; but I do not think you must press those words too far, because they had some regard to the internal conditions of the Union.

18. I do not know whether you have had your attention called to a document which has been supplied to us, which is a report prepared by Mr. Manley Hudson presented by the American Committee in Geneva to the United States Committee of Inquiry. Have you seen that?—I expect I have seen it. I have not it in mind.

19. In a passage on page 2 he says: "Article 8 of the Covenant of the League of Nations, originally proposed as a provision for the abolition of private manufacture, states that the private manufacture of arms and ammunition is open to 'grave objections' and envisages measures to prevent its evil effects." Then he goes on: "For 14 years, various agencies of the League have been engaged in an endeavour to deal with the problems connected with private manufacture. First the Temporary Mixed Commission, then a Committee of the Council, then a Special Commission, then a Committee of the Disarmament Conference, have occupied themselves with the problem, and each year for 10 years or more the Assembly of the League of Nations insisted that something be done. The contest has waged chiefly over the proposed abolition of private manufacture; short of that step a licensing system was proposed

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for private manufacture, with publicity required as to both private and State manufacture." That is a fact, is it not?—Undoubtedly there was a very strong division. I think you will probably find in the Temporary Mixed Commission's debates a very considerable difference of opinion as to whether nationalisation or control is the proper remedy; in fact I think the Temporary Mixed Commission reported in favour of control as the only thing upon which they could get something like unanimity. They were all in favour of control but they were not all in favour of nationalisation. I was at that time representing the British Government and I suspect that you will find—I have not looked back at the record—statements in which I advocated control, rather than abolition, as the practical thing to be done at that moment. But since then there has been a very considerable change of opinion on the subject internationally. At that time the United States were vehemently opposed even to control. They said it was impossible for them to do anything, because of their constitution. They have now abandoned that attitude altogether, and they say they can propose control. In the same way the French Government have now become much more definitely in favour of nationalisation than they were then. At that time the French members were divided in the Temporary Mixed Commission, some being in favour of control and some in favour of nationalisation. Now, I believe, they are all in favour of nationalisation.

20. The present proposition which is under discussion, the American proposition, is founded upon control, is it not?—Yes, it is. What has happened, as I understand, is that there was a debate in the Conference itself. A considerable number of people, including the French, argued vehemently for nationalisation. The British Government in effect expressed itself as hostile to nationalisation at that time, and in view of that the Committee has been seeking some measure short of nationalisation which they think might receive international unanimity, and that is the origin of the American proposal. I understand that that is what has happened, but, of course, that does not alter my opinion as to which would be the more desirable if we could get it.

21. It is extremely important, is it not, to come to some agreement if possible?—Yes.

22. And one may have to give way on one's own convictions in order to secure agreement?—Unquestionably. That is, of course, true of everybody, and you have to have in international matters, as you are well aware, and particularly matters of this kind, if not absolute unanimity, unanimity of the more important Powers, in order to do anything effective. Therefore it might well be, even if the British Government could agree on nationalisation, they might find it impossible to secure unanimity on that point. I can only say this: I should very much like the British Government to try. I have a strong feeling, from my experience of Geneva, that if the British Government were to go all out for any of these proposals, their position in the world is such that the prospect of unanimity would be very great.

23. Are you acquainted with the grounds upon which the British Government have put forward their proposed amendments to the American scheme?—Not more than appears from that speech of Lord Halifax; I have no private information, and if I had I am afraid that I should not be at liberty to give it to this Commission without the leave of the Government. As matter of fact I have no private information on the subject.

24. We have been supplied with a statement which indicates that the British Government's proposal is put forward upon the ground that it is more likely to receive general acceptance than the American original proposals.—I know.

25. They may be wrong, but that is the ground they have taken.—You are taking me on the very broad ground of policy, but I have no objection at

all. I would say it is a pity for the British Government to take that kind of attitude. They must make reasonable proposals, of course; but if they think one proposal is the right proposal, they should make that proposal, and let other Powers make objections. My experience with the League is that if you do that with vigour, if you are right, you will find an extraordinary rally to your opinion. I should like the British Government to put forward a proposal for definite abolition, and say that in their view that was the proper remedy. If they did that, although I cannot tell for certain, I believe the Germans would accept it and I think all the smaller Powers would accept it. You might have difficulty with the Americans—I do not know—but you would certainly have a very large majority of acceptances, and then it would be a question whether the countries which were opposed to it, whoever they might be, would think it worth while to hold out against something which the great majority of the governments desired and probably an even greater majority of the peoples.

26. Your Union recommends us and recommends the Government to accept the American proposal?—Oh! yes. I certainly recommend it. It is a stage in the right direction.

27. We have to consider the grounds on which the Government is putting forward these amendments?—Yes.

28. And to take the whole matter into consideration?—Certainly. There is another argument that they have used in public. They think it would be a simplification to avoid these inquiries on the spot, and, of course, it would be a simplification to get rid of the Permanent Disarmament Commission. I am not clear whether they are prepared to insist on the latter point. From the language of Lord Halifax I should gather they would not be prepared to insist on it if they found a majority of the Commission were in favour, but on the question of examination on the spot I admit that this would not be so simple a business as merely to send in reports to a central body at Geneva, which you must have if you are going on with that Convention, which in any case I think you ought to do.

29. May I now consider more closely the terms of our reference with reference to your evidence. What we have to do is "To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (a) by the United Kingdom alone, (b) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trading in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade." You have the terms of reference, have you not?—Yes, I have them before me.

30. With regard to the limitation of armaments, you have expressed the opinion that no scheme can ever be really successful unless it is general. Would your opinion be the same in reference to those two points that we have to consider—prohibition or State monopoly?—I should certainly say it can never deal with the whole evil unless it is general. The broad evil is the existence of financial interests which are in favour of war and hostilities, and unless you can get rid of all those financial interests you are evidently not dealing with the whole evil. I should say there was no evidence, to put it mildly, that the British manufacturers were the worst. Therefore if you only deal with the British manufacturers you only deal with a fraction of the whole evil. In that sense I have no doubt at all that the proper thing to aim at is a general scheme.

31. Assuming we start from the point of view that it is, I will not say absolutely necessary, but that it should be general to be effective, then it would lose a great deal of its power and influence if it is not general?—Certainly.

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32. In considering the question whether from a national or international point of view it is practicable, must not one consider the possibility of agreement?—Yes.

33. Can you say it is practicable from an international point of view unless you come to the conclusion that there is some probability of agreement?—I think the best way of ascertaining the probability of agreement is to try. That is where I respectfully disagree with the policy of the Government. I think it is a pity to go about making private inquiries too much beforehand, because I think people are much more unreasonable in private than they are in public. If you put forward a proposal which is in itself reasonable and commends itself to the general opinion of mankind, I think you will find that governments are reluctant to oppose it in public, and particularly if it is put forward by a Government of the authority of the British Government. I need not go into the international position, but everybody knows that in the world as it now exists we must have a very exceptional authority compared with other nations. We stand a little apart, and on whichever side we throw our weight it will probably be decisive. Therefore we have immense authority and responsibility. And in my view, the best way to ascertain what is practicable is to put forward our proposals reasonably—not putting them forward as an ultimatum and saying, "There they are, and we will not take anything less". Let us hear what the objections are, and if they are insuperable you will have to make concessions. Anybody who has had experience of Geneva knows that you do not get exactly what you want in the first instance. You put forward your proposals, you see what objections are made, and, as in Parliament, you accept amendments in order to get general agreement.

34. That is so far as the international point of view is concerned. From the national point of view, Parliament can always do what it wishes?—Yes.

35. But either course is of very little practical value unless it is general. Is there much practical value in any one country alone adopting either the one or the other?—There are two questions. As to this, I shall have to be rather careful as to exactly what I say. There are many people who would say that this trade is so repulsive that it ought to be abolished, like the slave trade. Exactly the same arguments were used when it was a question of the abolition of the slave trade. It was said, "You should not abolish it; all you will do is to injure British trade". All sorts of arguments were used, and very highly respectable people were vehemently opposed to touching the slave trade. They thought it would be disastrous not only to the fortunes of the people engaged in it, but to the fortunes of the country. The very strongest language was used. If you take the view that I myself take, that this is a trade comparable to the slave trade from the moral point of view, then I am certain that you ought to abolish it in this country in any event. That is to say, you ought to abolish the element of private profit. If you can so control private profit by such measures that you can get rid of that first motive, and yet keep alive private manufacture, I should see no objection to it; but I think it would be very difficult in practice to do it. Therefore I am personally in favour of the abolition of private manufacture in this country even if the other countries would not agree. I fully agree with what you are suggesting, that from the point of view of putting an end to the evils of the system, the adoption of those measures by one country would evidently be of infinitely less importance than a general adoption. That is approaching the question from a moral point of view. From the financial point of view, I do not see any reason why you should not do it in this country; I do not see that it would hurt us at all to do it. I do think that it would not be very much good from the point of view of getting rid of the whole evil; that is to say, you would still leave quite a number of sources of the evil; you would only get

rid of some, and perhaps not the worst, sources of evil, if you abolished the trade in this country. But I do think you have got to consider the moral aspect of it. To avoid the use of the word "moral" I have said "emotional" in my evidence, but "moral" is the more correct term. It is important in a democratic country to have that in mind, and one must not forget that the example given by this country would be of some value—one cannot know how much—as it was in getting rid of the slave trade. We abolished the slave trade in our own country and everywhere in our possessions, or the greater part of them, at considerable cost, and for some time other countries did not follow our lead, but they did follow it eventually; and at the moment there is no difference, at any rate on the statute book, between us and all the other civilised countries on that point.

36. The next point I ask you to consider is this: Supposing it is practicable to come to some general agreement about creating a State monopoly and abolishing private manufacture, what would then be the position? "Arms"—I will use the general term—would only be procurable from the State, but the State could still continue to employ a private firm to manufacture arms? The setting up of a State monopoly would not put a stop to that? It would have to be very carefully controlled?—Obviously, if the private firms were allowed to have any voice in the sale of the exported arms, it would merely be introducing by a back door the evils that already exist.

37. What was in my mind was this, that unless there were some form of general limitation of armaments it might suit some governments to turn trader?—Yes, it might.

38. It might suit some governments to make a profit and to employ private firms to manufacture for them?—Yes.

39. Then does it not necessarily follow that a State monopoly without limitation of armaments would be of little value?—I think it would be of much greater value with a limitation of armaments, as indeed anything that you are going to do with armaments must be, but I would not quite agree with you that it would be of little value. If you had all armaments manufacture in the hands of the State, I think you would have very much less probability of the kind of evils that admittedly exist in the trade. You could scarcely imagine, for instance, a State employing a man like Shearer to go and prevent the conclusion of a treaty for the limitation of armaments. They would not need to do that, and they would not do it. And it is very difficult to imagine that the so-called Skoda scandal in Roumania, or the so-called Mulliner scandal, earlier, would have occurred if the supply of arms had been in the hands of the State. I cannot imagine that you would get the same kind of scandals or evils. That there would be at times a motive for the State to supply arms, I do not deny. But it seems to me that States have so much larger and wider considerations to govern their policy, than the question of making a little profit out of arms; because, of course, it is a little profit compared with other State interests. They are less likely to be moved by motives of profit to do things which are against the peace of the world.

40. Thank you. That was all I wanted to ask on the first branch of our reference. The second branch of our reference deals with abuses. I notice in this little pamphlet issued by your Union, No. 347, under the heading "Evil effects of private manufacture", your Union adopts the description of the abuses which were contained in the Report of the 1921 of the Temporary Mixed Commission of the Assembly of the League. You will find that on page 4.—Yes.

41. That is rather a formidable list, is it not?—Yes.

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42. You think it is fairly exhaustive?—I should think so. I remember very well that being put in. It was not put in as the view of the Temporary Mixed Commission. It was put in merely as a statement of the kind of objections that we knew, from the evidence given to us, were made to this trade.

43. This question of the abuses in the trade is really a minor concern, is it not, compared with the major question of control or limitation? We are not considering the question whether you can get rid of abuses and by that means be relieved of all the difficulties in connection with the trade; the question we are asked is whether or not by prohibition or control you will so regulate matters that these abuses will either die or be perceptibly diminished. For instance, if you have a State monopoly, as has been pointed out just now, you can hardly assume the possibility of the continued existence of those abuses?—No.

44. And the same if you have effective control, the possibility of this class of abuse is very much diminished?—Yes. The difference between the two remedies is that by substituting the State for the private individual you would remove the temptation to commit those offences, whereas by the imposition of control the temptation would still remain, though you might be able to prevent that temptation having practical results.

45. The question of the existence of these abuses is only an incident in the whole question? Our decision does not depend upon whether it is possible to get rid of the abuses or whether it is possible to reduce the abuses?—I am not sure that I should be able to assent to that proposition as you state it now. I should have thought that, granted the existence of the kind of abuses which I indicated, and which are indicated in a number of papers, the object of this Commission is to suggest the best way of getting rid of them, having regard to other considerations.

46. You think the best way would be either by controlling the trade or by nationalisation?—I am afraid I am not following exactly your question. If you mean that, for instance, armaments manufacturers should not have any newspaper connections, I should not think that at all a useful proposal, because it could be evaded directly if they wished to do so. In the same way, if you were to go into many of the matters raised before the American Committee of Inquiry—the question of agents, of bribery of governments, and that sort of thing—those do not seem to me to have a direct bearing on the subject that you have to consider. That is my feeling.

47. That is what I am endeavouring to find out from you, but I do not wish to go through this list in detail. There are one or two questions that I would like to ask about what you have just told us in the statement of your views. You said that you thought that the cost of armaments was a direct incitement or inducement to war. Is it the cost? Supposing, for instance, a State decided to increase either its army or its navy, its neighbour would act upon that, not upon the question of what the cost would be. It is the fact that its neighbour is increasing either its offensive or defensive forces that is the inducing motive for action, is it not?—What I meant by cost was this: I took the condition in Germany and to some extent in France before the War. There you had perpetual increases made in the German army and navy, one after another. Of course, the increases were reflected in the budget; taxes had to be imposed; everybody who was familiar with Germany said there was a very considerable irritation at this growing cost, and in order to meet that irritation the German Government had to explain why that cost was necessary. In doing that they had to say, "We have got to increase our cost because"—in effect they said—"without that we shall not be able to resist France, and we regard France as the great danger." The

same thing is happening at this moment in Germany. The case for the recent German action has been their fear of attack by France. They say they are at the mercy of France; that France at present has overwhelming power. The Germans say, "We are not only at the mercy of France; we are at the mercy of any foreign Power as long as we are not allowed to rearm." They have put that across in Germany to a great extent, so you have great popular agitations in favour of rearming, so as to make them safe against foreign danger. That necessarily involves the elevation of one or more foreign Powers as the potential enemies of Germany, and that means, of course, an increase of the difficulty and tension and ill-feeling between those countries. Unless I have entirely misread the years before the War, that was one of the great causes of the state of feeling in Europe which, when the murders took place and the match was thrown in, resulted in the general blaze. It was the attitude of hostility and general enmity. I could quote the late Lord Grey to that effect. He made very strong statements that it was the piling up of armaments against one another, and all the accompaniments of that, which created the state of mind which led to war. I do not know whether I have made my point clear.

48. Yes. I should have thought myself that the cost was a deterrent. You take the other view?—Of course, no doubt it makes governments less anxious to spend money—at least, some governments—but the point is that once they have made up their mind to spend the money, they have to justify that expenditure, and in doing so they have to arouse the national feeling and the xenophobic feeling in their own country.

49. Just one question about the trade generally: I understand that your view is this, that the trade is so well organised, and takes such full advantage of all the opportunities afforded by the Press and so forth, that it has acquired an influence which is a danger and which ought if possible to be reduced; not that the trade is in itself from this point of view any worse than any other trade. It is not carried on in a worse way than any other trade?—No.

50. But the fact that it deals in armaments, and is so well organised, and is taking advantage of all the opportunities of Press publicity, makes its influence a danger?—I would rather put it in this way, that the existence of the principle that armaments should be a source of profit is bad in itself. In so far as it has an influence, that influence becomes obviously greater in proportion to the existence of the trade; and the more you can show that this trade extends to a very large degree all over Europe and—not more than any other trade, I agree, although I do not know very much about trade—has relations with other countries, it must have a very powerful influence.

51. *Dame Rachel Crowley*: I had a very large collection of questions to ask Lord Cecil after reading through the Union's paper, but he has answered a good many of them in his presentation of the case. I was also going to raise the question that the Chairman has raised in this last discussion. Therefore, I am rather more limited than I expected to be. I would like to go back, if I may, Lord Cecil, to some of the details that you quote, and particularly to the Chaco case. I was very much impressed, in reading the Union's Outline of Evidence, not only by what you say in the Annex, in Note A, but by what you say on the first page. "The continuance of the war between Paraguay and Bolivia, despite the repeated efforts of the League of Nations to bring it to a conclusion, was made possible, according to the report of the Chaco Commission of the League, by the constant supply of arms to the belligerents by armament firms in other countries." Then, under Note A you say that those arms were supplied to the belligerents by American and European countries. I should very much like to ask if you have any reason for believing that British firms,

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or firms created as British firms, took part in the supply of arms in this particular war or are taking part in the supply?—I think you had better ask somebody else about that, Dame Rachel.

52. Perhaps evidence will be given by one of your colleagues?—I should think so. I think the evidence, broadly speaking, is this, that there was a very considerable export from this country of ammunition to both Bolivia and Paraguay. There was a certain export of arms, but not so large. I have here the whole of the figures, which I believe come from the Board of Trade, and I shall be very glad to hand them in if you like to look at them.

53. *Chairman*: We have got them already, I think. *Dame Rachel Crowdy*: I do not know whether it would be in order to ask the names of the firms who exported?—No doubt the Government could tell you; I could not.

54. They were presumably exporting under licence?—They must have had a licence, I presume.

55. From the Board of Trade?—I presume they had a licence. I do not know anything about it.

56. *Chairman*: We shall get that evidence from the proper authorities and from the firms, no doubt?—I am afraid I cannot go any further.

57. *Dame Rachel Crowdy*: I should like Lord Cecil to expand his statement on the comparative efficiency of private manufacture and State manufacture as he himself knew of it in the Great War. It is a very interesting problem. One heard people say so often that efficiency would suffer if private enterprise were abolished?—Mr. Syrett knows more about it, but my recollection is that this is what happened originally. The Government found that they required immensely more armaments than they had anticipated—than anybody had anticipated, when they saw the kind of numbers that were engaged in the War—and the official provision for it was, of course, quite insufficient. They then turned, in the first instance, to the various armaments manufacturers, and gave orders for various things. I am speaking out of my own recollection, which may be inaccurate. They found that in point of fact the armaments manufacturers combined to pool their own resources—that they were unable to act independently—so that in fact the Government only got one additional source and that at a very considerable price. After trying that for a comparatively short time they set up the Munitions Department with the view of taking over the whole supply, the import as well as the manufacture of munitions. Then, under the inspiration of Mr. Lloyd George and other people, they expanded that to an immense extent. I do not think I am committing any breach of confidence when I say that I remember hearing from Sir Eric Geddes, who had a great deal to do with it, the kind of feverish activity in which they were engaged in order to create this gigantic State monopoly, and from that moment the private firms faded out altogether. They no longer had any independent existence—at any rate they did not play any considerable part during a large period of the War—and from the Report of the McKinnon Wood Committee, which examined the question, I believe you will find that the Government found that, although it was frightfully expensive doing these things, it was not so costly as if they had had to rely on private enterprise. But I am speaking with all reserve. I have not looked right into it.

58. If a State monopoly were set up, you do not think it would lead to loss of efficiency?—I see no reason to think that it would. And, after all, it is not as if we were starting a new State experiment; there is a very large State manufacture at present, and I think you will find that those at present engaged in it will hotly deny that the State business is any worse managed than that of private firms.

59. The only question is whether there would be an increase of cost because competition would be removed?—You would have the internal competition removed, certainly.

60. And profit making would be abolished?—Profit making would become a very minor consideration. That is the main point, and so far as this country is concerned it would not have any influence on policy at all.

61. I, and I think the other members of the Commission, very much wanted to hear an expansion of your proposals for nationalisation and how you think a monopoly could be brought about. I imagine from what you have said that that matter will be dealt with by later witnesses?—You will find that by far the most elaborate version of it that I have come across is in Appendix III on pages 24, 25, 26 and 27 of Pamphlet 359. There, I think, the whole of the difficulties—at least, all that occur to me—are faced. Probably Colonel Carnegie can give you detailed information on that point, if you require it. I cannot give you any more.

62. I was particularly interested in the national board which is spoken of, and I wondered if we should hear more about that?—I think I must leave that to those who are rather more technically equipped than I am.

63. *Mr. Spender*: One of my difficulties personally is to get into my head the proper definition of an armament firm. As one reads the Proceedings of the American Inquiry it is brought home to one that to make the armament firm the sole villain of the piece is to let other people off much too easily. The firms which seemed to play the greater part were not the armament firms in some cases, but the great Steel Trust. Mr. Shearer, whose name has been mentioned here, was, I think, the nominee of the steel industry?—Yes, the Bethlehem Steel Corporation.

64. And again in France it is not the armaments firms which have this influence over the Press—it is the Comité des Forges?—Yes.

65. If we are to nationalise, how are we to prevent the same profit-making going on by the great industries, and the same pressure being brought to bear by them on governments as is now attributed to the armament firms? Take the chemical industry?—I quite agree that that is a point which has to be met, but I think the answer to it is this, is it not, that the greater part of the evils arising from this trade, if not the whole of them, arises from the attempts to sell the finished article, and the question of whether they are going to supply a certain amount of steel to the government—I take that case—for the purpose of manufacture of armaments would not be a very important matter to them. They would not have any substantial control or any means of controlling the amount of steel that the government would require. The test that is suggested in the passage that I read just now is this: Is the product, which is being made, ready for use as a weapon of war? It is that process which constitutes the essential part of armament manufacture. As long as that process is in the control of the governments, and then they really have the means, and the duty, and the inevitable power of preventing the abuses which take place.

66. If one applied that to the agitation of, we will say, Mr. Shearer and other similar agitations which I myself have witnessed in Washington and elsewhere, would it make any substantial difference? Because there you had the ship-building interests, and the effort of the propagandists and their lobbying was directed to keeping up the level of ship-building in order to make profitable business for steel concerns?—It is conceivable that if the only people who were to be the sellers of the cruisers that were in question in the Shearer case were the governments, the Bethlehem Steel Corporation might have

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thought it worth while to send out Mr. Shearer because they were afraid that the result of an agreement would be to diminish the demand for cruisers, and consequently the demand for steel.

67. He was doing that?—Yes, but it was much more than that. It was the direct demand for the guns and the actual ships that he was concerned with. There would be an indirect demand for the raw materials no doubt; but in that case the motive surely would be infinitely less for private firms to spend money on sending out individuals to prevent international agreement. And in any event such agents would be met by the representatives of the governments in whose hands were the actual furnishing of those guns. I should have thought they would thus be in a very much weaker position.

68. I do not want to press it, but it is a rather important point. All these concerns would have very great interest, especially in naval production, in keeping it at a high level?—I admit that the existence of arms must make a demand for steel, and for coal if you like, and that therefore you might say that the coal miners ought to be sending out people to stop these negotiations. But they do not. When you get far enough from the finished article, the motive becomes so attenuated that it is not worth while spending the money. I am afraid I cannot give you any better information.

69. I have read, in the Proceedings of the American Academy of Science, an article in which somebody who was watching the American Inquiry argues that it must lead to nationalisation of everything?—If that happened you would have to take fresh measures, that is all I can say.

70. *Professor Gutteridge*: As a matter of fact no country had a State monopoly before 1914. That is correct, is it not?—I should think it is correct.

71. So that we have not any experience at the moment of what the position would be if there were a State monopoly and war broke out very suddenly. We are facing a new situation there, are we not?—I suppose we are.

72. And I think you would agree that that is the kind of thing we have to consider amongst other matters?—Oh, certainly.

(Adjourned for a short time.)

On resuming:

84. *Professor Gutteridge*: You suggested that it might even be a good thing for this country to adopt nationalisation unilaterally?—Yes.

85. Would not there be a certain difficulty there? That is what is rather troubling me. We should have to change over from our present system to a State system at a time when nobody else was doing it?—Yes.

86. It would be a disadvantage whilst that process was going on, would it not?—I do not think so. Of course, we have a State system to a very large extent; we have Woolwich, for instance, and other State factories, already. It would merely be extending that part of the system and diminishing the other part.

87. But it would mean, would it not, the establishment of new factories and a certain amount of absorption of labour, and so on?—It might; but I should have thought the probable course would be taking over certain portions of the existing factories.

88. You mean buying them out?—Yes; or giving them stock, or something of that kind—government stock—and buying them out in effect.

89. That would cause a good deal of dislocation for the time being, would it not?—It might. It would not necessarily have to be done all at once; it would be a thing that you would do gradually. I do not pretend to be an expert.

90. I was not suggesting that. I was wondering whether the point had occurred to you; that is all?—Yes, it has occurred to me.

73. We have to consider the national safety?—Without a doubt. If you are satisfied that the existence of private manufacture is an important element in national safety, you will give it great weight.

74. The thing is experimental to the extent that it has not yet been put to the test?—Yes, but the answer to that is that if it were put to the test it would be a good thing.

75. I am not saying that it would not, but there is that possibility that I have indicated?—Yes, I am not saying that the other system would not be equally good; all I am saying is that it was not an effective element in the national defence during the Great War.

76. The situation would be different in the case that I am putting to you, that of a State monopoly and a sudden outbreak of war. That is a situation that, so far as I am aware, has never yet been put to the test?—I suppose that is true.

77. I am anxious to have your views about this. Do you not think that there are certain difficulties in the way of inspection on the spot in a system of control?—There are great difficulties.

78. It would lead to a great deal of friction, would it not?—I do not think so, if it were a general thing. Of course they had a very elaborate system of inspection on the spot after the War.

79. It was unsuccessful, was it not?—I would not say that.

80. There was a great deal of evasion, was there not?—Not according to one view. There was very little evasion; there was some evasion no doubt, but I should have thought that, broadly speaking, it was fairly successful. The difficulty lay in the fact that it aroused such violent national feeling; it was the imposition of inspection on a beaten country. Here it would be inspection to show what were the actual resources of the country in armaments.

81. There was a certain amount of *amour propre*?—Oh, yes, it became a patriotic duty to evade disclosure. But if the kind of inspection now contemplated were instituted it would be instituted by agreement.

82. We should have to modify our national legislation, should we not?—I should think so.

83. The Official Secrets Act and so on?—Yes.

91. Is there not rather a dangerous transition period there? Let me put it in this way: There would be a period of transition which might be dealt with possibly by negotiation, if we did it unilaterally?—If the opportunity came about of doing it, you would have to do the thing reasonably, obviously.

92. *Sir Thomas Allen*: You quoted a statement made by Lord Halifax in the House of Lords? That statement did not express either his view, I take it, or the view of his Government; but rather was his idea of the position that public opinion had reached at the present moment with regard to the position of arms?—I think you are probably right; it was summarising public opinion rather than expressing his own; at any rate, that part of it that I read. He went on to express his own opinion later.

93. He laid a good deal of emphasis on profit motives?—Yes; that is the thing.

94. Telling us that public opinion is deeply moved by the fact that profit is derived from making and selling armaments. Are we to understand by that the elimination of the profit motive?—I should think so, certainly; that is to say, private profit and all that that brings with it.

95. But you would agree that the arms manufacturers are not the only people who take profit out of the traffic in arms?—I should think that probably is true. Obviously the shipping companies take part, in their freight business, and so on.

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96. But are not enabling credits put up and loans floated sometimes by State action, with State authority? To put it in another way, firms could not effect sales at all unless loans were advanced previously?—I am afraid I do not follow your question.

97. Enabling credits are put up for the various nations to buy the armaments; the armament firms themselves do not give credit to the various nationals who want the armaments?—They sell to the governments, of course. Under our system they cannot sell, as I understand it, to private individuals; at any rate, not to any large extent; they have to sell to governments.

98. And the governments themselves would float the loans?—The foreign governments would float the loans, no doubt.

99. Would you agree that whilst armament makers make their profits in the main from economic motives which lead to one country quarrelling with or conquering another, that does not come from the armament firms?—I should think it was very, very exceptional that the sale of armaments is the main motive, but I think the existence of the system does contribute very largely to the keeping alive of that kind of frame of mind between nations which is the main motive.

100. Assuming for the moment that armament firms have profited vastly by the war between Paraguay and Bolivia, the gain sought there is sought by both sides for wider territory, is it not?—No doubt.

101. There is a motive sometimes greater even than the motive of armament firms getting profit out of war?—Certainly. The actual proximate motive of war is obviously not the armament firms; it is the motive of the countries; but the armament firms or the system, rather, of selling armaments for profit does, in my judgment, contribute very largely to the atmosphere which renders those motives the effective and particular cause you mentioned. No doubt it would have been very difficult indeed for those countries—at least, so the League Commission found—to have gone on with that particular war without the assistance of the armament firms. That is a different aspect of the thing altogether.

102. Can you take it, then, that the members of your Union are convinced that, so long as the manufacture of arms is deemed a part of national defence, it must for the future be regarded in the light of a national service and not as a legitimate field for profit making?—That is our conviction.

103. As being too dangerous a weapon to be left in the hands of private enterprise?—That is so.

104. Your Union hold the view that to deprive the weapon manufacturer of the incentive to gain is a very important step in the removal of the influences which now divide the nation's conscience?—I think so.

105. You referred to the National Peace Ballot. You have been asking people to make a definite declaration on the question of peace or war—what action and machinery they favour for the purpose of preventing war?—That is so.

106. Is this the significance of the Ballot, that the people have seized upon it as their opportunity to make what they believe to be a real and timely contribution to national security?—I think so.

107. What effect has the National Peace Ballot had upon the Union and its activities? Has it increased or decreased the membership?—There has been an increase of membership.

108. Would you agree that, notwithstanding the enormous success of the Ballot, the political and traditional obstacles in the way of the proposals that you outline are still enormous and less easy to be overcome than the taking of profit out of arms manufacture?—You mean the other questions?

109. Yes?—Well, of course, the first question is support of the League. There is no insuperable difficulty about that. The second question is general

disarmament. We know there are very grave difficulties about that, because we have had experience. The third question is the abolition of air armaments. There are certainly very grave difficulties about that, and it is one of the questions on which there has been relatively more doubt in the answers. The last question, of course, is sanctions, economic and possibly military. No doubt there are difficulties about that, but it fair to observe as to the first question and the last two questions that they are merely saying in effect: Do you approve of the Covenant?

110. You are aware that we are to inquire, if feasible, as to whether it is possible to nationalise this trade?—Yes.

111. Do you hold the view that the matter of arms construction can be solved as a separate problem?—I think I have already answered the Chairman on that matter. In my view it would be a very important element in the solution if you could get a limitation of armaments. That would make it much easier. Whether you proceeded by way of nationalisation or by way of control, it would eventually be a very much easier problem to deal with if you could get an international limitation of armaments. I do not know whether I am answering your question, but I am doing my best.

112. Would not, say, State factories acting only as the finishing instruments collapse as a business proposition in the first hour of crisis?—Do you mean to say the moment war broke out?

113. Yes?—I think it is true to say that all these provisions which aim at disarmament would come to an end when war broke out. The purpose of them is to make it less likely that war would break out, not to control the operations of war once that took place. I have no doubt that every government will do what it thinks is necessary for its own safety once war has broken out.

114. And you think that we can effectively nationalise armament construction without nationalising a large slice of our general industry?—I think so.

115. Now with regard to monopoly. Do you see any insurmountable practical difficulty in the way of State monopoly?—I do not myself.

116. You answered a question put to you by Dame Rachel Crowdy with regard to the drug traffic. Would the arms traffic, by reason of its precision and size, be a simpler proposition to control than the drug traffic?—I think it is fair to say that. I think that is true.

117. Given a State monopoly of manufacture, who is to be the salesman?—The government.

118. While arms continue to be produced, how are those non-producing nations to acquire their requirements under State monopoly, purely national or international?—They would have to buy from governments that produce. At present they buy from private manufacturers, of course; and in the passage I read out in most cases the governments have sufficient influence with their private manufacturers to be able to utilise political pressure in connection with the sale of arms.

119. But I gather from you that there would be less inducement to sell to governments requiring arms?—I think there would.

120. If there were a State monopoly?—I should think there would always be sufficient inducement to sell, but I should not think they would press governments to buy if they were not willing to buy or were not ready to buy.

121. Given a State monopoly, is there any guarantee that there would be less eagerness to sell the commodity as a government product than as a product of private manufacture?—I think there is this difference: that the element of private gain would be largely absent. There would be the desire to make the government arms business a success, no doubt, and the officials connected with it would

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desire to make it a success and make it pay, but it would not make any difference to them pecuniarily whether it paid or not.

122. I have in mind a reference made by Sir John Simon to a question in the House with regard to diplomatic influence. Would not there be the same eagerness if a nation were a non-producing nation and it wanted armaments?—I think there would, but there would be this difference: that at present the diplomatic influence, whether it is exerted to the very limited extent that Sir John Simon described in this country, or to the more extreme extent that it is in foreign countries, is exercised on behalf of private traders for private gain, rather than with due regard to all the political circumstances of the case which would be present to the mind of any government.

122A. But given a series of State monopolies, would not these foreign governments be seeking orders just as much as private manufacturers?—I think that to some extent they would. It is difficult to speculate. To some extent they would, but their governing motive would be the motive of public policy. That is to say, the question whether they make a profit out of their arms business would be comparatively a small matter to them compared to the very much bigger questions that they would have to take into consideration in dealing with a question of this kind.

123. If we find that nationalisation is not feasible, we are to report on what system of control might be effectively employed. Can you see any way of taking profit out of the construction of arms and still leaving the construction to private manufacturers, even under a system of control?—I think it extremely difficult; indeed, the question almost, if I may say so, answers itself.

124. If there were one salesman, say, and one purchaser in a State, would it matter whether the producer was a private manufacturer or the State?—They might buy from private individuals and sell again. All export would be in the hands of the government. That would be a possible solution. I am afraid I have not thought about it sufficiently to be quite sure whether that would meet all the cases; I should rather doubt whether it would, but it would meet the greater part of them, no doubt.

125. You referred to the American draft proposals, and you say that all your members desire agreement with the United States, and as a first step the adoption and ratification of measures not less effective than those which the American Government have recently proposed. As a first step to what?—What I think was meant was that though, at any rate, a majority of the Executive Committee of the Union would be in favour of nationalisation, yet even they would be prepared to support, as a first step towards the complete control and the complete abolition of the abuses which we fear, the American scheme. I think that is the meaning of "a first step."

126. But you would agree that even the American draft falls far short of the demand of your Ballot?—Yes—taking private profit. It would not take private profit out by itself, but possibly with some such machinery as you have suggested, a central selling board in each country, that might meet it; and, of course, it is quite true that if you combined the American proposals with a complete system of limitation of armaments everywhere, there is no doubt you would get much nearer the abolition of private profit than you would without a limitation of armaments.

127. As far as I gather, even the American proposals fall far short of prohibiting private manufacture?—Oh, certainly.

128. I note also that the Russian delegate to the Conference pointed out that they did not make for even the checking of profits of private manufacturers?—No.

129. And that it was vain to entertain the illusion that the American draft plan would change the situation. Would you agree to that?—I think that

is unduly pessimistic. I think it would be an improvement.

130. I note also that the American draft plan falls very far short of what Mr. Henderson describes in the Labour's Foreign Policy pamphlet, where he says that the Labour Party is determined, if it is returned to power, to take profit out of armaments, and that it will propose the total abolition of the private manufacture of arms and munitions which the members of the League have agreed to in the Covenant. I think it is correct to say that Great Britain does not accept the American draft proposals in their entirety?—Not in their entirety, I gather, but it is difficult to say, because the Committee has been sitting behind closed doors.

131. Can we take it, then, that the opinion of your Union is that whilst arms production is essential to the life of the nation, the time has now passed when it can be trusted to the uncertain and uncontrolled operations of private firms?—Yes.

132. Sir Philip Gibbs: I gathered from your statement this morning that you think that the profit of armament firms is increased by the deterioration of the international conditions?—Yes.

133. Do you think that there has been a rather steady deterioration during the last year, or even the last six months, in international relations?—Yes, I think, broadly speaking, that would be true; but it was because we thought that the situation was developing so dangerously that the Ballot was set in motion a year ago.

134. In view of the fact that you think these conditions have deteriorated, do you think that the possibility of getting an international agreement on this particular subject, the arms traffic, is more difficult now?—Of course that depends. I would be very glad indeed to answer that question, because I have a very strong view, but I am not quite sure that it will not go a little beyond your terms of reference. However, that is not for me to judge. I think that in a sense there has never been so good a chance of dealing with the arms situation as there is now. I think the countries are up against it now, and they have really to do something effective or they will slip down to a situation which must end in war. I think everyone, all over the world, is realising that. So there is a considerable reaction in favour of collective action, collective control, and collective security, and, in fact, something which is indistinguishable from the League of Nations. I think that is true, and it is obvious it must be so, that the moment you have a country which appears to be making preparations for an eventual war, you have got to deal with the situation somehow. In my judgment you will not deal with it by any measure of security by itself, unless you accompany that with measures of disarmament; and, as the Chairman has pointed out, this question of private manufacture is ancillary to disarmament. I think you will have to deal with it. I am sorry to make so long an answer and I hope you will forgive me. To my mind that is the essential part of the situation. We are charging the Germans with breach of treaty. Unquestionably their reply is: Yes, but you are guilty of a breach of your undertakings, which were to reduce armaments roughly on the same lines as we did, and you have failed. Therefore, if you are going to make any effective reply to the Germans, in my view you must make it quite clear that part of your policy is going to be reduction of armaments.

135. And you still think it possible with the state of mind in Europe to-day, with all these fears of hostilities, to get some kind of international agreement on this particular subject?—I should have thought—not perhaps on this particular aspect of it, but on disarmament generally—that, properly handled, the situation was more favourable to an agreement than it had ever been. But you must be courageous; you cannot get anything for nothing; you must be prepared to make your proper contribution to collective security and all the rest of it.

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That must be part of your settlement. I admit this is all rather political.

136. It is rather important to know whether we are dealing with a thing which is not from the very outset futile?—Yes.

137. And to know that there is a chance?—In my view there is.

138. That is why I asked you the question. Could you give us any explanation as to why there was a complete failure in carrying out the Convention for the Supervision of the International Traffic in Arms, of 1925, which was ratified by 14 nations. How is it that with the ratification of 14 nations nothing whatever was done to carry that into effect?—I speak from recollection, but I think I am right in saying that the ratifications were conditional on ratifications by certain arms-producing countries.

139. One of them being the United States of America?—Yes, the United States of America.

140. And Italy?—Yes; and that at that stage the United States of America took the view that the Federal Government could not enter into obligations of that kind because that would be to interfere with State rights. I understand that that view is no longer held by those who have been negotiating at Geneva, and that they are prepared now to enter into some very considerable obligations which they at that time thought were *ultra vires* of the Federal Government.

141. And so in view of the change of opinion in the United States you think perhaps that the chances of getting agreement are better now than previously?—Certainly. There is a very strong feeling in the United States on this subject; at least as far as one can judge, there is. It is not for me to say, but my impression is that that general feeling is shared by the President.

142. Do you think there would be any danger in the case of State monopoly of private firms setting up factories in remote and backward countries and operating from those districts?—I think there is a danger. That has happened, of course, in the drug traffic. But it is not so easy to happen, I should think, with regard to such things as armaments as it is with regard to drugs. I do not know. I think it is a possibility, and, therefore, it would be necessary to get as general agreement as you could.

143. Do you think that any rigid system of licensing control could prevent bootlegging and gun-running in arms? I am talking now entirely of a licensing system?—I think a great deal could be done if it is done by a very powerful, effective and uncorrupt government, but I do not think it would be a practicable remedy in the case of a good many governments.

144. I suppose in the case of an international agreement it would be very much easier to prevent?—Yes. Of course in my judgment it would be far easier to enforce a monopoly agreement than a control agreement, but I may be wrong. That is my feeling; that it would be a simpler matter really to enforce monopoly than control.

145. Do you think that private firms as now operating in this trade have a direct incentive to arm a nation which is preparing for an aggressive war?—Yes, I do certainly.

146. Do you think that that incentive is very strong?—It is evidently good business. You have these letters like Jonas's letter. He was afraid that Bolivia and Paraguay were going to settle the matter peacefully. It is obvious that there must be a much greater demand for arms in time of war, or when a war is threatened, than in time of peace.

147. Do you think perhaps it is happening now with regard to countries which seem in public opinion to be aggressive, like Germany, that these manufacturing firms in all countries are touting for orders in Germany?—I should be surprised to hear that they were not, but I do not know anything about it.

148. You do not know anything direct about that?—No.

149. Have you any particular knowledge about our present licensing system?—Not except very generally.

150. Have you studied it at all generally?—Of course I have been a member of the Government and I have seen the working of it—as to whether a licence should or should not be granted, and so on.

151. Do you think it is operated on any particular principle, on any ethical principle, or on any practical principle?—I would much rather you asked someone who could speak positively about it; but my impression is that, generally speaking, it goes almost as a matter of course. If an application for a licence is made it is granted by the Board of Trade as a matter of course. If they have any doubt as to the desirability of granting it, I think they refer the matter to the Foreign Office, and if there is any considerable doubt about it, it goes to the Cabinet. That is my impression, but I would rather you asked someone who knows how the thing is actually worked.

152. Have you personally been aware, at Geneva or elsewhere, of any attempts by financial or industrial interests to bring pressure on yourself or on your colleagues or on the Conference in which you were engaged?—Of course I was there when Shearer was there, and there was unquestionably a most tendentious telegram sent to America by Shearer—all sorts of nonsense about intrigues, by me, among other people, with the Japanese delegate—the suggestion being that we were getting behind the Commission and that the Americans were going to be left in the cart. All that was absolutely invented. There was not even a scintilla of truth in it, except that the Japanese delegate came to have tea with me one day as a matter of ordinary diplomatic courtesy. We could not carry on much of a discussion because he did not talk a word of English and I did not talk a word of Japanese.

153. *Sir Philip Gibbs*: You have not been aware of other cases?—I cannot say that I have been aware of them, but I have an impression, which I must admit I could not substantiate, that the more international negotiations get near to a definite attempt to limit armaments there is an influence, which appears in a variety of little ways, which seems to be hostile to its success.

154. *Professor Gutteridge*: Is that necessarily from the armament makers?—I could not say.

155. It might come from another quarter, might it not?—It might come from any quarter. I may be entirely wrong; I do not want to put this too high; I should not have said it in chief, but as I am asked the question I am bound to reply, and I have the impression that there has always been this kind of atmosphere of difficulty the moment you get near agreement dealing with the question of private manufacture of arms; so long as you are dealing with other questions—the general questions of the League—

156. Soldiers and sailors have rather pronounced views, I believe, on this matter, quite apart from the armament makers?—There are very few questions on which they have not pronounced views.

157. *Sir Philip Gibbs*: Do you draw any strong distinction between State control and nationalisation in your own mind?—I draw the distinction that as I understand State control, you will leave in operation the motive of private profit, whereas if you have nationalisation you get rid of the motive of private profit. It is quite true you might conceivably have so stringent a method of State control that it would eliminate private profit altogether, and then it seems to me it is very doubtful whether you would find that private enterprise would go on.

158. Continue working?—That is so.

159. Do you think that one of the dangers of private manufacture of arms is the constant invention of new types, and that, therefore, it creates

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competition between nations for the possession of those new types. Do you think that would be eliminated by State control?—No, I do not think it would be eliminated. I think it would be probably diminished. There would be less motive for doing it, but it would certainly go on to some extent. I speak on this matter purely at hazard. I do not know whether I am right, but I should imagine considerable improvements have been developed in the State factories at Woolwich and elsewhere which have been adopted in our armaments and in other armaments. They have not been only the work of private individuals, I should think. But I speak at hazard; I do not know whether it is so or not.

160. It would be a little difficult, of course, under complete nationalisation, because one nation would possess more modern types of weapons and the other nations would not possess them, and if you eliminated private trade in arms then you might create new hostilities and fears among nations, who would know that one nation has a very superior type of weapon which it could not get hold of. Would you think that would be a lesser danger than the present system?—That danger exists now, of course. Take the French '75 gun. That was practically a monopoly of the French, as I understand it, or the French and one or two of their allies. But you know much more about that than I do, Sir Philip. Certainly, at one time some of the torpedoes were monopolies of the British Admiralty. The Whitehead torpedo originally was the monopoly of the British Admiralty, and so on. On occasions, the government to which the invention is sold makes it a condition that they shall not sell it to anyone else, and in that case you get the monopoly. But in point of fact I believe I am right in saying that those secrets are almost always discovered rapidly and become public property, and once they are discovered, of course, other countries begin to manufacture either exactly the same thing or something of the same kind.

161. I gather your greatest hostility to private manufacture is that owing to the profit making system the more strained international conditions are the better it is for trade, and that if you can eliminate that profit, you eliminate also the incentive to keep those conditions strained?—That is it.

162. That I imagine is one of your strongest arguments?—Certainly.

163. Would it be fair to say that you would go so far as to say that the private traffic in arms is one of the actual causes of war?—Yes. A predisposing cause is the way I should put it, rather than a proximate cause; and I think it is undoubtedly an obstacle to efforts to peace in the way you have been alluding to in the questions you have put to me.

164. *Dame Rachel Crowley*: When I was in Washington a month ago I talked over with members of the Nye Committee what they called the armament ring. They told me that the fact that manufacturer A. could not export because of trade regulations, or whatever it might be, from this country to the scene of war, they would pass on the contract to manufacturer B. in another country, where the laws were less stiff, and they would get a commission on the export from country B. Do you know anything about that at all?—I only know of the evidence which has been given before the Nye Committee. There is evidence of letters of this kind. "We have, of course, heard from several sources that Bolivia wants A.A. guns quickly, but we do not think for a moment that a shipment or sale to Bolivia could be made direct, while that country is at war. If, however, an American armament firm of some standing bought the guns, for eventual resale, things might be easier—or if the Colombian Government, who are not at war, bought the guns, they could no doubt have them. We are investigating the question with the War Office here regarding a direct supply to Bolivia through yourselves, and will inform you of the results as soon as we can, but in principle we are not so hopeful of permission being

given. In any case, we do not think there are many A.A. guns apart from ours to be got from stock and quickly, so your chance of selling new guns with a few months delay may be increased if we cannot supply, or if we refuse to supply, should we be allowed to do so. We shall promptly advise you of any new developments on this subject."

165. That does not absolutely refer to the point that I was on?—No, not quite.

166. The point of the Nye Committee was that manufacturer A., having handed on the order, took a large commission, having himself been forbidden by his government to export to that particular warring country, and I was going to ask you if you have any idea, supposing the monopoly is introduced into this country and there is control of private manufacture, of any way of which a ring of that type could be made non-effective?—I think it is all very difficult, but theoretically I suppose it is possible to make it a condition of the licence that the goods are only to be sold to a government. That would be, I suppose, one of the conditions, and then it would have to go to the government direct. It would still be possible, as these people suggest here, to sell to the Colombian Government, who would pass it on to the Bolivian Government. I should hesitate myself to think that any system of control would be so effective as to make it impossible to get round it. Indeed that is my principal doubt about the system of control.

167. Would you think the best method would be an import certificate system issued by a responsible government?—I think you will be able to tell me, but I think that is the system in force with regard to drugs?

168. Yes, it is; but I wondered whether you consider that would be any solution?—I think that is the best way of dealing with the difficulty. It is a form of government monopoly though it is not actually complete nationalisation.

169. In which case presumably our Board of Trade would not give a permit to export unless the exporter from this country had an import certificate licence signed by the foreign government?—It would have to be something of that kind.

170. *Chairman*: With regard to the position in the event of there being a State monopoly, as you have pointed out, or as you said in answer to a question, the only source from which a non-manufacturing nation could obtain arms would be from a manufacturing nation. Assume the case where a manufacturing nation refused to sell to a particular State for political reasons; that State would then have to apply to another government. Do you think that if the other government complied with that request, it would be considered as an unfriendly act by the government that had refused to supply the arms?—It depends on the circumstances, of course. If it was with a view to attacking the first government there might be difficulties, but I should not have thought so. What is said in that passage which I read out is that at the present time in a great number of countries a government will intervene if they have strong political reasons for preventing a sale by their nationals, even private manufacturers, to a particular government. They will intervene to prevent it, and according to these people who spoke for certain governments they do not think that the difficulty of the non-manufacturing governments would be any greater under a system of government monopoly than it is at the present time.

171. I want to call your attention to your pamphlet, No. 359. There is a very striking passage on pages 15 and 16. It is rather a long passage, but if you will turn to page 16, about half way down you will find this: "Only when the peoples as a whole accept as a reality the renunciation of war as an instrument of national policy, and look upon their national forces principally as a means of maintaining order within their territories and of

* Appendix: Annexe, Note C, item 20.

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co-operating with other nations to defend international order, will the system of international supervision have a good chance of success".—I agree with all that. I have not the least doubt that the best remedy is to get rid of war.

172. It goes a little further than that because it says until you get a better feeling amongst nations, a better spirit amongst nations, there is no chance of doing anything. In substance, that is what it says, is it not?—I should agree, broadly speaking, with that as a proposition, which you have quoted, that no arrangements for the bettering of international life will permanently succeed until you get rid of this conception that each nation is seeking to attack another nation; but I think you can do something. The passage in question relates only to international supervision; it is not at this moment

dealing with the question of national monopoly. I ought however to call your attention to the rest of that paragraph which you read, and particularly to the last sentence: "It is, however, contended that measures designed for the curbing or repression of commercial interests, which profit by the manufacture and sale of implements of war, and which at present exercise a very powerful influence upon sections of public opinion, will in themselves contribute to the required enlightenment of the public conscience in all civilised nations".

173. I did not mean to conceal that.—No, I am sure you did not, but that really states what I was trying to say.

174. *Chairman*: We are very much obliged to you, Lord Cecil, for your evidence.

(*The Witness withdrew.*)

Miss K. D. COURTNEY, called and examined.

175. *Chairman*: I believe you are a Member of the Executive Committee of the League of Nations Union, you were formerly President of the Women's International League and you attended the Disarmament Conference as observer of the Women's International Disarmament Committee of the Women's International Organisations, 1932-1934. Is that correct?—Yes.

176. You are prepared, as I understand it, to make a statement to us supplemental to what Lord Cecil has said?—Yes. I should like, if I may, to say something about the American proposals of 1935—those which are now before the Disarmament Conference. I should like just to remind you of the origin of those proposals. They were first made when there were prospects of at least an armaments limitation convention being agreed to and were accordingly made to fit into a limitation convention. When it became obvious that no convention was likely to be agreed, even a limitation convention, the character of those articles was changed and the centre of gravity, if I may call it so, was altered and their whole weight depended upon publicity. Without limitation obviously you are dealing with a kind of bottomless sink; manufacturers can go on making armaments to any extent. You have to have some kind of criterion, and failing limitation the criterion became publicity; and so publicity is really the keyword to the whole of the American draft proposals.

As you know, the essential idea is one of control, national and international, and the draft convention is not an alternative to nationalisation because the control set forth in the American proposals could be exercised, and indeed would be exercised, over States which have a State monopoly, such as Russia, just as much as over States which have private manufacture, like our own and most other States. Consequently we must not regard it as an alternative to monopoly; it would operate whether or not there were a State monopoly because it provides that every government shall assume responsibility for the manufacture of armaments within its territory. Consequently every country would be free under the American proposals, were they accepted, to set up a system of nationalisation, if it wished, without affecting the American scheme in the least. As far as the American draft convention is concerned it makes each government responsible for the manufacture of arms within its own territory. It further proposes (and these are two highly important matters, because they have been raised several times in the course of the discussion this morning and this afternoon), to equalise the situation as between producing and non-producing States, and to equalise the position as regards State manufacture and private manufacture. In regard to State monopoly it may be noted that although per-

haps Russia is the only country in which the manufacture of armaments is nationalised, the possession of arms and the whole question of armaments is a State monopoly in those countries which are not producing States, because the only body which can own armaments on a large scale is the State; consequently in such countries armaments are already a State monopoly. International control is set up by the American proposals not only over private manufacture but also over State manufacture, thus eliminating some of the difficulties which have been raised this morning and this afternoon; and this control, this equalisation, is arrived at really by means of publicity.

The Americans propose to set up a system of licences, a very strict system of licences, both export and import licences, so that any armament manufactured could be traced through its whole life, from its start, where it was made, to, finally, where it ended up in the possession of a State. Further, there are to be licences for the manufacture as well as for export and import of armaments—that is a new proposal. In this country we have licences for export, and so have a few other countries, but none has licences for import; and, of course, no system exists of licences for manufacture. The draft convention sets up licences for manufacture; it makes provision for a very complete system of publicity, by which there would be publicity before manufacture, publicity, by weight, by value, by number and by categories.

It further provides for inspection on the spot—not merely the verification of documents, but inspection, by an international commission, of factories which are licensed to make armaments. It was suggested this morning that such a system might produce friction. I would suggest that the alternative system proposed would produce more friction; the system by which inspection on the spot would only take place in the event of a complaint having been lodged. For instance, all of us are subject to a customs examination and we accept it as ordinary routine. If our luggage were only examined because someone said that we were carrying contraband, I think that would create friction very much more than the present system; we should want to get our own back on the person who had denounced us, and that would be the kind of friction set up under the alternative system. However, I will come back to that in one moment.

I want now to dwell for a second on the question of the categories, enumerating the armaments to be controlled. The American proposals set up a very valuable list of categories of armaments, defining, in short, what armaments are. That definition has

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[Continued.]

two values, one inasmuch as it is a definition, and secondly inasmuch as it provides for varying degrees of inspection, licences and publicity, according to the character of the armaments enumerated, whether wholly military, partly military, or not military at all, such as weapons intended for sport. On that question it is interesting to note that the air weapon has been very carefully defined. The British Government raised the question, at an early public meeting of the Committee at Geneva, of the importance of bringing civil aviation under very strict control—civil aeroplanes and parts of machines—and as a result of the discussion certain kinds of aeroplanes and certain parts of aeroplanes are put into the categories which get the most supervision. Perhaps it is worth while calling attention to the fact that the criterion agreed upon for military aircraft lies in its equipment with special guns, machine guns, and their mounts and frames, the theory of course being that they cannot be used for military purposes without some equipment of this kind. The fact also that the special guns with their mounts and frames, the bomb racks and release mechanisms are put into Category III makes them subject to the strictest form of supervision. This means that they cannot be bought or sold without both import and export licences, nor can they be manufactured and stocked in reserve without the fullest publicity, if the American text for manufacture is adopted. I venture to call your attention to that because, on a side line, it is a way of bringing civil aviation under some kind of control and supervision.

The British Government, as you know, has objected to the kind of publicity proposed in the Convention, and it has objected to the plans for inspection on the spot. In the last speech of the British representative he referred to the fact that people had been spoken of as maximalists and minimalists, and he declared himself a maximalist because he was supporting the form of Convention which he believed would receive the greatest amount of support. But upon looking at the list of supporters of his proposal I find it consists of Great Britain, Italy, Japan, with Poland rather doubtful, whereas all the other States supported the fullest amount of publicity and inspection, and it seems odd—I do not quite understand; I speak in ignorance—that Great Britain should suppose the greatest amount of agreement would be obtained for the proposition which had the smallest amount of support, because that is actually the case—only three countries, with a doubtful fourth, supported the proposal which our representative declared had the greatest probability of general acceptance.

177. *Sir Kenneth Lee*: What countries were absent?—I do not know what countries were absent at the last meeting but the other countries on the Commission were the United States of America, France, Czechoslovakia, Spain, Sweden, Switzerland, Canada, China, Belgium, Turkey, Denmark, Russia, Italy, Poland, Japan, South Africa, Lithuania, Mexico, Persia, Afghanistan and Venezuela.

178. *Professor Gutteridge*: Were there any reservations?—There have been a very large number of reservations.

179. The reservations simply have the effect of knocking a hole through the whole thing have they not?—I do not know that you could say that. We believe that agreement could be reached if the two really outstanding difficulties of publicity and inspection were overcome.

I should like to make two further observations, one on the question of so-called neutrality if it could ever be said to exist under the League of Nations. The report is accompanied, as you no doubt know, by a very detailed report of the committee of jurists which dealt with the whole question of derogations from the Convention, and with what would happen in the case of war. I will not

venture to comment on it, because I am quite incompetent to do so, and no doubt you have it before you.

I should like also to make one other comment. A question was raised in the early part of this afternoon with regard to the habit of governments of making loans to non-producing countries with the idea that the countries would use those loans to buy armaments from the producing countries making the loans. The British delegation, when this matter was being discussed, did make a proposal, which I do not think has been followed up, that the convention should deal with this very question of loans; but as far as I have been able to see, looking through the text which has emerged from first reading, that subject has been omitted. I should like to call attention to the fact that the text you have in your hands emerged from first reading materially altered, though the substance I do not think has been changed. Those are all the remarks I desire to make on this subject, I think.

180. *Chairman*: What is the position of the discussion upon the American proposals now? Is the matter adjourned?—The end of the first reading has been reached, and it has been adjourned; I do not think any date has yet been fixed for the second reading.

181. From your observations there appear to be only two main questions which are left in dispute: publicity and inspection on the spot. Is that so?—No, I should not say that. There are a whole lot of other points which have been reserved, the decision on which depended upon a decision upon other points. Those were the two big outstanding questions. A large number of other questions were reserved.

182. *Dame Rachel Crowley*: You said something at the opening of your speech, when you were explaining to us the various articles of the American draft convention, and you said publicity was required before manufacture. I think that is what you said, and I did not quite understand what it meant. You said it required not only publicity but publicity before manufacture. Do you mean that the parties to the convention would have to send in estimates of their requirements for the coming year?—No, I meant publicity for orders; that any order received by a firm would have to be reported at once to its government and by its government to the international commission at Geneva.

183. Before it was fulfilled?—Yes within thirty days of reception of the order, I think it is.

184. I think you said something about the Union regretting any amendment to the American draft convention which would lessen its effectiveness—that any amendment of the draft proposed by the British delegate at Geneva would, in your view, make the American draft convention ineffective, or less effective?—I think the amendments we had in mind in making that statement were amendments relating to reducing the quality and character of publicity, and to the question of inspection on the spot. I think those were the two specific matters which we had in our mind which we believed would make the draft convention ineffective because they would probably make it unacceptable to other countries.

185. *Mr. Spender*: Are the British proposals being pressed, or merely put down as a contribution to debate which could be modified as they went forward?—Do you mean the amendments of the British Government?

186. Yes?—They were pressed. They are put down under the first reading as alternative proposals supported by the British Government, by Italy and Japan, and some of them by Poland.

187. The matter is still under discussion?—Yes.

188. There has been nothing final?—No. It is simply the first reading text which we have before us now.

189. *Dame Rachel Crowley*: Have the Americans suggested in any way a compromise from the draft convention which they are putting forward—any

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suggestion which might meet the points of view of Japan, Italy, and ourselves?—The first reading text is in itself a compromise; it is the result of discussions that have taken place over a period of nine weeks, mainly in private, and I think that as it emerges it no doubt is capable of further alterations. But the articles as they now appear are not the articles as they were put forward by the Americans; they have been a good deal changed already in various ways.

190. *Professor Gutteridge*: As a matter of fact, there has been—I am not concerned at the moment with the proportions—considerable division of opinion on this Committee?—We imagine so. The whole thing has been conducted in private, so we only know what we are able to obtain from the reports which have been issued.

191. I am speaking from memory, but I have a recollection that the Polish and Swedish delegates at an early stage of the proceedings urged the Committee to refrain from trying to aim at too much, but to try and get something on which there would be general agreement. Is not that so?—I do not know. That has all happened in private. They certainly did not do so while the proceedings were in public.

192. Do not you agree that it would be better to do something which will secure universal agreement than to aim at something which will merely result in nothing?—I should say so, yes, if I knew what the universal agreement was going to be.

193. I will tell you what I have in mind. You know the Geneva Protocol against chemical warfare, do you not?—Yes.

194. That was agreed to in 1925, was it not?—Yes.

195. Nothing has ever been done with regard to that, has it?—Well, it is supposed to be in operation, I think.

196. Are you sure?—The reason why it does not work, if you remember, is—

197. They cannot define the appliances?—I think the reason is that it permits the use of chemical warfare by any State against whom it is used, and this means that the whole business of invention and experiment is kept going.

198. *Professor Gutteridge*: It is not very much good.

199. *Mr. Spender*: Was not the prohibition very much earlier; was not it laid down at the Hague Conference in 1907?

200. *Professor Gutteridge*: That is so; but the matter was revived again after the War. My only point is this: There you get a definite thing agreed to at Geneva, and then nothing comes of it; and that is why I was suggesting that if we can get something which is really going to be agreed to and really is going to function, is it not better to try for that than to try and aim at something which will come to nothing? You are familiar with Geneva, I think, are you not?—*Miss Courtney*: I have been there pretty often.

201. Is it not a fact that at Geneva countries very often sign and then do not ratify?—It has happened with a good many countries, I think.

202. Is not that one of the difficulties of working the Geneva system, that you cannot be sure that if people sign they will carry it out?—I suppose it is a difficulty of any system in which delegates are authorised to sign, but must refer to Governments for ratification.

203. With regard to inspection *en place*—on the spot—I should have thought there are certain practical difficulties there, are there not?—I think there are a great many practical difficulties.

204. I am not referring merely to any possibility of friction or anything of that kind. What I mean is this: If the people who are being inspected are playing the game, if they are being honest, then you will probably find out what is going on; but if they are being dishonest and not carrying out the agreement you probably will not find out what is going on?—I should think that is very likely.

205. I am not convinced of the efficacy of it. Do you really think it is more efficacious than a system of national inspection together with verification at Geneva?—I have not really got the knowledge to be able to reply "Yes" or "No" to that question; but certainly the opinion of the majority of the Conference is that it would be more effective. A number of persons who are quite entitled to think so would not accept a convention unless it provided for inspection on the spot, because they do not believe—

206. You say some countries go as far as that?—I think so, yes.

207. They will not have it unless there is inspection on the spot?—I think that is France's attitude.

208. And there are some countries which will not have it if there is inspection on the spot?—Yes, Great Britain, Italy, Japan and probably Poland.

209. Do not you think there would be a certain amount of uneasiness in this country if emissaries from Germany at the present time were able to enter our dockyards and see what was going on there?—Not if we were able to enter theirs on the same terms, I think.

210. If we were able to?—We should be, because the inspection would be international.

211. I am not quite so sure about that as you seem to be. It seems to me that one difficulty is that you may get one country giving facilities to another and then not receiving facilities in return. I am afraid I have not got the belief that you have.—If the country in question did not afford the facilities the convention would be broken and the matter would have to come before the Council of the League.

212. What do you suggest would be done then?—I do not think I could go into the mind of the Council.

213. Perhaps I might ask you one more question. Are you familiar with the working of the Drug Convention?—I know it in general.

214. I think that has been successful, has it not?—I do not know to what extent it has been successful, but you have a member on the Commission who does know.

215. I wondered whether you had studied the matter?—I only know about it in a very general way. It has occurred to me that it would be far easier to control arms than drugs, because arms are so much bigger than drugs.

* 216. If the control of drugs has been a success, you think the control in the case of armaments has more chance of being successful because it is a larger article?—I think so; because you could not smuggle arms as easily as drugs.

217. *Sir Thomas Allen*: These American draft proposals were designed as part of the groundwork of the general Disarmament Conference, were they not?—They were originally so designed, but when it became obvious that no convention was likely to be agreed within a reasonable period of time, they were proposed as a separate convention to stand by itself.

218. I understand that the British Government agreed on all points with the American draft except one referring to proposals for international inspection?—In addition to inspection there was the question of publicity on which they were not agreed.

219. Do you think that each country could be relied on to make honest returns?—I should not like to dispute any country's honesty.

220. You are aware that Sir John Simon in the House of Commons said that verification by a committee at Geneva was to be preferred?—He said so, yes. That is the British position.

221. *Sir Philip Gibbs*: Is an agreement on this convention dependent upon the re-entry of Germany into the League of Nations?—I do not think it has been made dependent upon it.

222. It seems to me it would be extraordinarily awkward to work if Germany were outside the convention?—Yes, I think it would be.

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223. You have no knowledge yourself as to the German attitude on this subject?—No, I have not. I have no doubt that some of the countries have, because they have kept in touch with the German representatives.

224. Do you happen to know, for instance, whether France would ratify this convention without the re-entry of Germany?—I do not know.

225. There has not been any discussion on that subject, as far as you know?—Not as far as I know; and, as has been repeatedly said, unfortunately all the discussions have taken place in private.

226. How is it that Japan is acting on this convention; she seems to be taking part in this?—Japan left the League, but she did not resign her membership of the Disarmament Conference, and it is in that capacity that she is represented.

227. Is there any chance of Japan withdrawing from this particular convention when the period arrives when she withdraws entirely from the League of Nations?—I think that if she signed the Convention—(the period of her withdrawal from the League has expired)—she would stick to it, no doubt, until such time as she withdrew her signature or it expired.

228. Do you know whether there are any other nations which would abstain from this particular

(The Witness withdrew.)

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232. *Chairman:* You are prepared, Colonel Carnegie, I understand, to give us your views on some points not already touched on?—Yes.

233. Would you prefer to make a statement?—Perhaps I might just say a few words to begin, and then perhaps questions could be asked of me. I am concerned with national boards in particular. First, may I say that I agree with all that Lord Cecil has said this morning about the dangers arising from the uncontrolled arms industry. As you know, the proposals that have been made to remove the dangers are two, control on the one hand, and abolition on the other, of the arms industry and the private manufacture of arms. A great deal of discussion took place at Geneva over the two remedies during the time I was a member of the Temporary Mixed Commission, and I then shared with Lord Cecil in supporting that majority report to which he referred this morning. At that time we had in view the difficulties which are set forth in the documents that have been presented to the Commission, and reached the conclusion that a form of State control or licence, under all circumstances, would be more likely to remove the evils referred to in the Covenant than the total abolition of private manufacture. The nature of the control with which we then dealt was merely licensing, and, as Lord Cecil pointed out this morning, it included a good many restrictions upon private manufacture.

Since then I think we have moved forward, and, in the reports which have been handed in—the reports published in the Unions Pamphlets Nos. 347 and 359—we have there set down the arguments; we have repeated the arguments which were advanced at Geneva, and also arguments that have grown around the subject since then, and have reached the conclusion that the nationalisation of the arms industry—and what I mean by nationalisation is this: I mean the full nationalisation of the arms industry embodying all that is employed in manufacture—would entail the complete State ownership of all industries, which, as far as our Committee agreed, was not desirable at the moment. We therefore thought that the means of control which were more likely to be effective in removing the evils were to be found in a system by which a government would place into the hands of a public authority the control of the manufacture, sale, and distribution of arms, not only for a home government but for any foreign government requiring arms from the country manufacturing them; and so there is set out in the reports before you

convention?—I do not think it is possible to say that. This convention has been elaborately studied by a committee which consists of certain nations, and I should imagine that if the countries which are on the Commission accepted it the other countries would do so also.

229. Do you know whether France is satisfied with the American proposals, or does she want to make them rather more stringent?—I think France is satisfied with the first reading, with certain reservations which she has made on the first reading. The American proposals have been considerably altered during these nine weeks, and the French delegate has put in certain comments.

230. *Chairman:* We are much obliged to you, Miss Courtney.—May I just say this? We do not know what the German position would be, but the Germans have always said that they would accept any form of supervision or inspection that other countries were willing to accept.

231. *Sir Philip Gibbs:* How long ago did they say that?—*Miss Courtney:* Hitler said that again quite recently. At the same time he said they would do away with any armaments which other countries would abolish.

the idea of national armaments boards, the object being to give to the public authority the right to control the arms industry in the country, not only private industry but also the State factories producing arms. That control would eliminate entirely what I, personally, consider to be the greatest evil in connection with the private manufacture of arms. That is the power that is left in the hands of the private manufacturer to go to A, B and C countries and solicit orders without any restrictions whatever being placed upon them, and at the same time using all kinds of propaganda—which are well known to you—which have led to very serious abuses and the dangers which we have heard referred to already.

The board would be the sole channel through which all orders from the home government or from foreign governments would pass. The private manufacturer would be prohibited from going outside his own country or even approaching the national board in his own country for any orders from foreign nations; he would be restricted to a licence granted by the national board for any measure of work required by him in aid of the manufacture of a weapon. Further, one of the other functions of the national board would be to place with the government factories orders for the completed weapons. The national board would have no authority whatever to determine policy; it would exercise no right to say what arms might be required by a nation; that would be simply the policy of the government; but its business would be, once that policy was determined and the measure of arms required by a nation was settled, to obtain results, and it would obtain them in a definite way. First, it would place the order for the completed weapon in the hands of a government establishment. The government establishment being unable, perhaps, under present conditions, to supply the component parts of the weapon necessary for the completion of the weapon, it would request the national board to supply either the raw materials or the semi-manufactured materials in aid of the completed weapon for which it held the order. Then the national board would licence A, B, C or D manufacturers to produce those component parts in aid of the completed weapon, but in no circumstances, according to our proposals, would the private manufacturer be entitled or given the right to produce the final weapon. Thus, the existence of such a body, it is believed, would remove that incentive to profit which the arms manufacturer in his freedom to secure orders has, and in consequence of which he is tempted to use methods which are not often

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considered proper. Further, with reference to the question of the supply of arms for foreign nations the procedure as outlined here would be very much the same. That is, the foreign nations, knowing through a central authority what capacity a country had to produce the arms, would apply to that country through the national board for the supply of arms. The national board then would exercise the same function of ordering the completed arm through the national factories, and, in turn, the component parts which could not be made by the government factory through private manufacturers. Generally speaking, that would be roughly their function. As to the nature of that body, one of the reasons why it has been suggested is this: that it could be composed as a body free from military control or political control. It might be considered somewhat on parallel lines with the body which was set up under the Dangerous Drugs Convention two or three years ago at Geneva, but it would, while only being a human instrument, have more liberty of action which would give it the right to secure the munitions required by the home and foreign governments without the dangers that now exist from the private manufacturers soliciting orders from foreign countries.

The question of inspection has been referred to. Of course, that would be part of the work, and while there are difficulties in connection with inspection, they are not by any means insuperable. As to national inspection, if I may say so, I found no difficulty whatever in getting even a fairly satisfactory inspection in the case of munitions during the War in Canada while I was a member of the Imperial Munitions Board there, and had no difficulty in arranging contracts for the supply of munitions by Canadians to the United States through our Imperial Munitions Board, and proper inspection without more than the ordinary irksome things that arise.

234. *Chairman*: Was this during the War?—Yes.

235. But, of course, very different considerations existed than would exist in peace-time?—Certainly.

236. Everyone was willing to help during the War; everyone might not be so willing to help in peace-time?—Yes. If I may refer to the question of inspection now, the inspection of arms now made either in government factories or in private establishments is all done according to specification; the inspectors have their specifications for the supply of munitions; so that the difficulties which have been raised as to the question of the inspection of materials—

237. Has anyone suggested that there is a difficulty in inspection, assuming the inspector is one of your own nationals?—No. I am coming to the question of international inspection; I am referring now to the question of national inspection. International inspection would be quite another matter. I quite agree about the difficulties which might arise where suspicion arises, but it is not an uncommon thing for inspectors from a foreign country to come over to Britain to the various yards, or the various private establishments, to inspect and test and pass the materials made there; that is the foreigners who come over for the purpose of passing their own materials.

238. They come by invitation more or less?—They come in order to see that the work which has been ordered by their governments has been made to the specifications supplied.

239. *Sir Thomas Allen*: That is an inspection of their own work?—Yes; but the other inspection, which is the troublesome inspection, is where there is any doubt of a nation fulfilling its bargain under any treaty arrangements, where inspectors are supposed to come over and inspect facilities and the kind of work done. That is another matter and quite a serious matter, but that does not come into the range of functions of this particular national board. I see the possibility of setting up such an

organisation as this even in our own country, without similar powers in other countries, although that would be a better arrangement; but I see the possibility of such a board functioning and thus preventing the evils arising from the freedom of private manufacturers at the moment in our own country. That is all I have to say.

240. *Chairman*: In substance, what you have outlined is all contained in this pamphlet, is it not?—The two pamphlets.

241. Yes; but generally in No. 359?—Yes.

242. *Professor Gutteridge*: I think it is No. 347 which has most in it, is it not?—Yes. No. 359 embodies what is not embodied in No. 347; that is, the manufacture of the completed article by governments.

243. *Chairman*: I think that all you wish to say is plainly set out in these two pamphlets as I see them; but are you assuming that an effective purpose would be gained by unilateral action by one nation, or are you assuming that to make your suggestion effective it must be international?—It would be international, but my assumption is that it would function unilaterally.

244. It would function, of course, but would it function usefully?—I think so.

245. Would it advance other than the moral side of the question?—It would certainly be moral, but I think practical. That is my own feeling from some experience of such boards.

246. It would not reduce the number of available arms if you cut one country off without cutting all the others off?—No, it would not; but its function would not be to limit arms at all; only to make arms determined by the government. The board would simply be the authority to manufacture and to issue export licences for what was manufactured.

247. Would you be prepared to allow under your system the exportation of arms made in this country to the extent to which exports exist now?—No. I am not concerned at the moment about measure; I am concerned about the principle of the organisation that we are considering. Supposing the British Government orders x arms, this national board would only be responsible for the production of x arms.

248. Yes; but supposing the Government continued its present policy—I do not know exactly what the policy may be, but it is said that they grant licences almost automatically now—supposing they continued that policy, even under your system that would be possible, and there would be exactly the same amount of arms exported, only they would be produced under different conditions?—Yes, that is so; but under the proposed system the export licences would be issued only from the one authority, that board whose knowledge would be purely that of a particular industry. The licences at the moment are issued through the Board of Trade, which is dealing with all kinds of materials—not that I am suggesting they do not know what they are doing, not at all—but here is a board dealing with a particular industry, a board which is set up to watch the abuses which have been alleged, and it would be their business to see that no licences were issued for the export of any materials that were not right.

249. But, then, I do not quite follow. Why should not the board have the same policy as our present Government has, or any existing government?—There is no reason why the board set up should not have the same authority to issue licences, just as, say, the Board of Trade issue licences to-day. But what I am trying to emphasise is this: Here is a board set up to control the arms industry, not to control all industries; its functions will be to watch that the materials that are exported are the materials that the board has ordered. The Board of Trade do not handle the orders.

250. No; but supposing the board were to think that the more arms we export the better; your system would not improve matters at all, would it?—That is rather an impossible thought, is it not?

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251. Well, I do not know.—I should suggest it is, with due respect to you, Sir. I think it is not likely that any board set up with the object of removing abuses would encourage the multiplication of arms instead of trying to reduce them. If I might emphasise just one point which Dr. Garnett has mentioned to me, it is this—I have said so before—the chief difficulty that I see at the moment in the freedom of private manufacturers is in their power to solicit orders.

252. *Professor Gutteridge*: Touting?—Yes. The board would stop that entirely; they would be prohibited entirely from touting because they would not be permitted to take any orders except through the one source, the national board, and they would be prohibited, in peace-time at least, from the manufacture of any completed weapons.

253. *Sir Thomas Allen*: Why could not all this be done by a national authority?—I distinguish very greatly between State ownership and control by a public authority. The public authority would have nothing whatever to do with the finance of the factories; their business would be simply to see that the orders were completed, that they were passed to the government factories, and they would arrange also for the inspection in the way that is mentioned in the report, but they would not own the factories. It goes to the broad question of national ownership, and the difficulties arising from that are so many that it is unnecessary for me to go into them now, as they are known to you.

254. *Professor Gutteridge*: You put this forward as a really permanent scheme, I take it?—Yes.

255. As I understand it, your view is that it gets rid of all these abuses connected with soliciting orders in South American republics, and that sort of thing; and not only that, but it affords something which can be brought into operation at once?—Yes.

256. It can be brought into operation unilaterally if necessary?—Yes.

257. And it avoids all these complications of deciding what parts of the national industry shall be nationalised?—Yes.

258. I am rather interested in this matter. Are you the author of this scheme?—I should not like to say that I am the author, but I proposed the scheme and submitted details of same in a memorandum to the National Executive Committee of the League of Nations Union. Some modifications were made by the Committee of the Union and the scheme was finally embodied in the reports which have been handed in.

259. My reason for asking you is this. Have you ever considered the working out of the administrative details of this question?—I have, yes.

260. For instance, have you formed any idea as to what the composition of the board would be?—I have in my own mind.

261. How many members would you suggest?—If I may say so—it is only a suggestion—I think there ought to be about 12 members. There ought to be a financial member; there ought to be a legal member; there ought to be a commercial member; there ought to be an engineer, and so on. You see what I mean?

262. Yes, I see what you are after.—A board which will envisage the industry as a whole and deal with it.

263. They will be full-time paid members?—Certainly.

264. Something like the Electricity Board?—Yes.

265. What is puzzling me a little is this: What would be the relation of that board to the present buying departments of the Services? You have been a soldier, have you not?—Yes.

266. You know the sort of arrangements which are made?—I have been on ordnance work.

267. So have I; I have been an ordnance man, too.—That is my work. If this board were carried out on the lines suggested in our report we should bring under control the Air Ministry and the War Office.

268. Take them over?—Yes, so far as they were affected. We would take over the inspection departments in so far as they were affected, and pass on to them that authority that you would pass on to your buying department or your ordering department and the like, and also pass over to the inspection department the details necessary for the examination of the work.

269. May I put it to you in this way: Supposing the Government want to reinforce the artillery in India and they decide they want to have an additional eight mountain batteries—shall we say eight quick-firing mountain batteries—could you give me an idea of how that would work in this case?—Yes. The order would come through the M.G.O. or through the War Office. It would come to the national board; it would then go—you are speaking of mountain guns—to, say, Woolwich Arsenal, and they would quote for it. The board would receive the quotation and say "O.K." or not. Naturally there would be certain component parts which Woolwich could not manufacture, and they would immediately send back to the national board: "We require certain components for these mountain batteries," and then the board would go to A, B or C private manufacturers and they would licence them to produce the component parts. Those component parts would be inspected by the inspection department of the board; they would go back to Woolwich and be assembled at Woolwich.

270. You said that the order would go to Woolwich, but there is no reason, I take it, why it should not go somewhere else?—Not necessarily.

271. There is no reason why it should not go to a State factory, or, if a private firm were better fitted to carry it out, it would go to them?—No; I am not suggesting that.

272. That is what I want to know.—I am suggesting that if it goes to a private factory that private factory shall be State owned. For instance, supposing it were found that we could not extend Woolwich to deal with the particular order, we would look around and say: "Well, there are certain private armament firms that are capable of producing these things." That factory would either be taken over entirely as a State owned factory for the final completion of the work and become part of the State establishments, or—

273. In other words, take a certain type of submarine which can only be built at Vickers? As you know, there are certain types?—Yes.

274. Would you take over Vickers?—Yes.

275. Why should not it be sufficient if you order the submarine from Vickers?—The reason why is that if we admit the principle of the final manufacture of a submarine by Vickers, why should we refuse them the right to make submarines for A, B and C foreign countries?

276. Take the Bolivians—they will not do because they have no seaboard—but take the Peruvians; supposing they want submarines, why should not they come to the board and say: "We understand that Vickers make excellent submarines; we would like one of them; we cannot approach Vickers direct, but can you get one for us?" Why should not that be done?—I see one reason.

277. There would be no soliciting or touting there?—That is just what I am going to say. There might be. It might be that the knowledge of Peru requiring submarines would put Vickers' people on their track, and that would suggest to them that the name of Vickers should be used in the application to the national board, that they should receive the order, and certain moneys might be passed over.

278. I see what you mean.—That is a possibility. You are speaking of submarines; I am thinking of other things.

279. Yes—rifles and explosives. There are certain private firms which make rifles?—Yes.

280. The B.S.A. Company and Enfields, and so on. You might get this type of case, where 10,000 rifles

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[Continued.]

would be ordered from the board and it might be left to the board to place that out between Enfields and the B.S.A.—Yes.

281. There would be no difficulty there in a case of that kind, because nothing would be suggested to the board; the board would control the matter absolutely?—Yes; but I am suggesting that all the finished weapons should be made in State owned factories.

282. That is what I was trying to get at. Your scheme is really a combination—?—Of nationalisation and control of the arms industry.

283. Might I call it the last stage of nationalisation?—Yes; because I personally from the experience that I have had think that if we nationalise the arms industry we must nationalise every industry.

284. That is your experience in Canada, is it?—Not only in Canada, but in this country too.

285. Having been an ordnance man I can hardly think of anything that is not wrapped up in it.—That is so.

286. *Sir Thomas Allen*: When you speak of a State-owned factory are you speaking of factories owned for the time being for the making of specific orders?—No, I do not mean that; I mean a factory such as Woolwich which could be extended as a permanent establishment for the manufacture of arms. I am not overlooking the question which was raised this morning about expansion and the need for expansion in time of war. That is a possibility.

287. In respect to placing an order with Vickers, say, with a State-owned factory?—Yes; that would become part of the State.

288. Permanently?—Yes.

289. *Sir Philip Gibbs*: If it does become part of the State permanently, it seems to me that that is nationalisation?—Of the final article, certainly.

289A. *Sir Thomas Allen*: I was going to pursue that. You will be creating a new authority, a third authority in that case, will you not?—I think not. In what way? I want to follow you.

290. The private manufacturer would still be allowed to exist under this scheme?—Certainly, but only for the supply of the raw semi-manufactured material in aid of the completed weapon.

291. But still he is an armament manufacturer?—Absolutely.

292. Engaging in a certain process up to a certain point?—Yes.

293. *Sir Philip Gibbs*: Do not you think that your system would eliminate the private manufacturer, and that if he cannot make profits and if he cannot tout in foreign countries and get orders in foreign countries, he could not carry on private manufacture; and it would really mean that he would surrender himself to the government as a private manufacturer except in so far as he is a manufacturer of steel or raw material?—Exactly so.

294. So it is the elimination of the private manufacturer of arms?—It is the elimination of the private manufacture of the finished arm. The output of every private manufacturer of arms at the moment, I should say—perhaps a little more now than a few years back—consists of perhaps 90 per cent. ordinary commercial products, and 10 or 5 per cent. armaments.

295. You think it is as high as that, do you?—I do not think it is as high in some cases; it would be less in many. Perhaps it is as high to-day; I do not know exactly; but what I mean by that is that the private manufacturer is not to suffer severely by reason of being deprived of the final manufacture, because he would still be licensed, if he were a suitable manufacturer, to produce the component parts and supply the raw materials; so that he would become a useful help in time of need even in expanding the instruments that he had in his possession.

296. *Professor Gutteridge*: There is a little difficulty in defining "components," is there not?—There is no difficulty when you come to the classification set forth in the American document.

297. How do you deal with the bolt of a rifle?—That is a component. If it is a finished bolt it is a component.

298. Would not it be possible in that case that by piling up enough components you pile up enough completed articles?—There is a danger, but can you conceive of a manufacturer piling up components if he has no outlet for them?

299. I was merely thinking if there was any dirty work going on?—Take a manufacturer; it is not likely that the board would place with A all the component parts.

300. I think that is the answer to the question?—They would be spread as at present. Take Woolwich, for instance; you purchase all the time many components from A, B and C factories throughout the country that are not recognised as armament manufacturers at all; they make certain commercial parts that fit the weapons that are used at Woolwich; and such people would still exist and would be useful in helping in the final manufacture. But what I do want to stress is that we do remove from the manufacturer the temptation to abuse which may arise and has arisen over solicitation and the use of propaganda; for I cannot conceive of a manufacturer owning the Press or spending money in advertising through the Press for orders that he is not likely to derive any benefit from. He would not be sure, under such a system as we propose, that he would receive any order at all; he would certainly not have the order for the completed weapon under any circumstances.

301. *Chairman*: Supposing he was in a trust?—Even then he could not. The State factories would make the completed article.

302. *Mr. Spender*: The only point which occurs to me is this: You are proposing to add another piece of machinery in the making of munitions between the beginning and the end?—Yes.

303. Of course, I agree it is very important to avoid abuses, but at the same time we do not want to run up against technical people who will say that speed and efficiency are very important in this industry, and by adding this additional piece of machinery, as they will call it, you are putting obstacles in the way. Cannot we find some method which will not be liable to that objection and yet will help to remove the abuses?—But, Sir, this proposal is on the lines of the ordinary rationalisation of industry to-day. There are bodies set up for dealing with the production and distribution of materials. In a sense it is a kind of combine; it is a combine for public value and public safety instead of for profit.

304. We are starting with great industries which have elaborate machinery for dealing with the finished product. Now we have to start by breaking those up?—No.

305. That is so, is it not?—No.

306. For the finished product?—No. That would not be the idea. The idea would be to use all the machinery, which now exists for the final completion of the weapons, where they are, or in any suitable place where they may be assembled, such as, if you had room, at Woolwich. You might make your armour plates there instead of at Sheffield, but there would be no real advantage either from the money point of view, or from the labour point of view, or from the point of view of having a central place for expansion, to shift the plant from Sheffield, but they would be purchased and owned by the State. That is the only difference I have to suggest.

307. Purchased?—Yes, owned by the State.

308. *Sir Thomas Allen*: Would the board be allowed to accept orders from abroad?—Manufacturers would not be entitled to receive orders from abroad through the board for completed articles; they would only have the component parts or the raw materials.

309. *Professor Gutteridge*: I gather that is the essential part of your scheme, is it not?—Yes.

310. *Sir Kenneth Lee*: How would you deal with the aircraft industry under your scheme?—May I

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suggest what we did in Canada? We built a national factory there in an agricultural country for making aircraft, and to my amazement we were able to produce aircraft at the rate of five a day in a few months; and under the scheme we could certainly have all aircraft produced in the same way as naval products or land products, State finished, component parts made by private manufacturers.

311. It would mean that the State would buy the present aircraft factories?—Certainly that part of the factory where the final assembly took place.

312. There would be no aircraft factories except State owned?—None, for the complete aircraft, apart from State owned factories.

313. *Chairman:* Not even civil aircraft factories?—That is a question. I personally should include them all, but we are now dealing with the arms industry.

314. *Sir Philip Gibbs:* Is not that nationalisation under another name?—No.

315. It would eliminate the entire aircraft manufacture and take over the sheds of Vickers and other people. It seems to me that it is the

(*The Witness withdrew.*)

Mr. H. S. SYRETT, C.B.E., called and examined.

320. *Chairman:* I think you propose to give us a short statement? I think the public generally would like to know your special experience?—My special experience is that I am a member of the Executive Committee of the League of Nations Union; I am Chairman of the City Branch; and during the War I was personal private secretary to Mr. Lloyd George at the Ministry of Munitions. I mention the last matter as indicating that I have some knowledge of control, although I should not wish to be examined with regard to the activities of the Ministry of Munitions.

The matter which I wish specially to deal with is the question of the armaments board, which has already been dealt with by Colonel Carnegie. I should like to say, first of all, that, generally speaking, I am in entire agreement with what Lord Cecil said this morning with regard to the evils of the industry. I am not quite in agreement with him as to the desirability of nationalisation; I think that would be a very big problem and would meet with tremendous opposition, and from that point of view, at all events, it is not what I call practical politics. I am anxious to get something done, and I think that if the Commission would follow the proposals contained in this report of the Union, which were arrived at after a great deal of discussion of conflicting views, they would agree at all events that there is a good deal to be said for it. One or two questions which were put to Colonel Carnegie seemed to indicate that the Commission were not quite versed with the idea of the national armaments board as we visualise it. Our idea is that that should be a body of eminent persons appointed for a term of years and quite free from any political influence; and I must say, having had something to do with politics, that I think that is a very essential feature. We want to get a body of men, with possibly one or more women, who would be free from political influence or control, and would deal with the matter somewhat on the lines of the Electricity Board or other boards which are now set up and advocated with regard to what is known as the rationalisation of industry.

I think that the armaments industry, in common with a great number of other industries, would welcome such a proposal. In fact, only to-day, I see that Sir Harry McGowan at the meeting of Imperial Chemical Industries got up and defended himself and his company from any participation in the arms traffic. I think that the Commission will find, when they came to hear evidence from representatives of the armaments industry, that they are as anxious as anyone that their position should be regularised, if I may so describe it, and I think

nationalisation of the arms industry to a very great extent?—To a very great extent, but it does not eliminate private manufacture.

316. I am not so sure about that. There is not much left, is there?—There would be a great deal left. What I want to emphasise is this fact: that it would not deprive private manufacturers from receiving a fairly large quota, and that quota would be extended.

317. *Professor Gutteridge:* May I make a suggestion to you? I think what you really mean is this, is it not: that your scheme would avoid any possibility of having to nationalise every industry in the country?—Surely.

318. If you put it in that way, I am with you. But otherwise it seems to me to be a nationalisation scheme, up to a certain point at all events?—Yes.

319. *Chairman:* I think your scheme is first cousin to nationalisation?—Yes, of the arms industry, but not nationalisation of industry as a whole.

they would find that some such scheme as we have put forward in this report would work and would be welcomed by the industry. I am not suggesting that it is not capable of improvement; I am not suggesting that there are not a lot of details to be worked out; obviously there are; but I am not a technical man, I am a lawyer. I have followed the problem since the beginning of the War, and during the whole of the time I was associated with the Ministry of Munitions, and I have given some study to it. I think that if you got a body of independent persons appointed in that way, they would deal with a lot of the difficulties which were put to Lord Cecil this morning.

As regards the supply of arms to foreign countries, obviously if orders have to go through national armaments boards of this description there cannot be any graft, there cannot be any question of political or other pressure, there cannot be any question of commissions, there cannot be the abuses which are set out in this little pamphlet (No. 347) and have been referred to in the American Inquiry. They would be entirely free from any influence of that sort.

I am not quite sure that I understand Colonel Carnegie's method of working this armaments board. Speaking for myself—and I say at once that I am not a technical man, and there may be difficulties in what I am suggesting—I cannot see why the armaments board should not continue the present armaments system in existence, but subject to complete control, just in the same way as we controlled them at the Ministry of Munitions during the War. We had most effective control—financial control, technical control—and we had inspection from beginning to end, and we found that it worked extremely well. I am not such an extreme nationalist as some of my friends, who would wish to eliminate private profit altogether, but what I would like to see would be control; and during the War, as you know, by means of our system of accountancy we did control the profits made out of arms. I may mention, as Sir Thomas Allen knows, that I was also at the Food Ministry. We controlled the profits made out of food. It is a complicated matter, but it is not insuperable; they can be controlled. If it were possible to control the profits made by armament firms by this armaments board, surely it would be possible to avoid the scare raisings which go on—for instance, on the stock exchange during the last few days, because the public think there are going to be tremendous orders given for aircraft, with the consequence that up goes the price of aircraft shares. If the public knew that the armaments board controlled the profits made by aircraft firms,

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[Continued.]

then speculation in the rise and fall of shares would at all events be very much minimised; and my suggestion is that this national armaments board formed on the lines indicated in this report is a sound idea which could be put into force.

The objection which Mr. Spender made, that we do not want to set up more bodies, I quite agree with, but here we are up against a terrific problem, a great evil, and we have to get over it, and if by setting up a body of this kind which commands public opinion and public approval we are able to meet the problem, surely that is a way out of our difficulties. I think, as I said before, it would be a scheme which would be welcomed by the armament firms themselves. I believe that, generally speaking, they are as anxious as any citizen to avoid any suggestion that they are fomenting war or doing anything to encourage strife, but they have to carry on their business. At the present time they do not know how to carry their business on. Obviously, if they are to do it to advantage, they have to get all the orders they can; they have to take advantage of all new patents and new ideas which come into force, but if they have this armaments board to go to who will tell them what is wanted, how they are to carry on, what orders coming from abroad are to be fulfilled, and who is to carry out those orders, and what price is to be charged, their difficulties will be very largely removed; difficulties with regard to armament rings will be got over, because the armaments board will see that a proper proportion of orders is put with different firms; there need be no unnecessary competition in that regard, and in my view a large number of the armament firms would feel, as they did during the War, that they were really rendering a national service because they were carrying out the instructions of a public body to provide for the defence of the country. I am assuming, of course, that in the present stage we are unable to visualise the total abolition of armaments, or even any great measure of limitation.

Dealing with the international side of it, I agree that there may be difficulties there, because obviously we cannot say to all other countries in Europe and elsewhere, "Well, you set up armaments boards," but we could put the proposal before them, and even if this idea were not adopted by other countries, that would not prevent me from advocating it, because I believe that in matters of this kind example is far better than precept, and I think, as Lord Cecil said, that this country has now an enormous opportunity of giving a lead in this particular matter. How far it would commend itself to our American friends I do not know, because, though I am quite in favour of the suggestions made in their proposals, they would not militate against the proposals contained in this report. I think you would find that it would deal with a great many of the evils which at present surround the traffic. I think it is the first step towards taking profit out of war and of controlling the arms industry in an effective way.

321. *Chairman*: Under your scheme, supposing an order comes from abroad for some particular article of Vickers' manufacture, naming Vickers' name, and that comes to the board, would the board be obliged to pass it on to Vickers, or could they say: It is not Vickers' turn; someone else must have it?—Not necessarily. Obviously, if it was an article which only Vickers could supply, they would either have to take the course of saying to the foreign government, "We cannot agree to your having it," or they would agree; but it would have to go through the department and they would have an opportunity of seeing whether it was desirable to supply that particular government with that particular article.

322. Of course, if an order came for an article of Vickers' manufacture, and it came to the board, it would have to pass from the board to Vickers, and Vickers would have the same inducement to tot for the order as they have now?—Except that you would have the safeguard that it has to go through the supervision of the armaments board, who could say, from all their knowledge of the circumstances, the position of the foreign government, the nature of the article which was required, and the general position at the moment, whether it was desirable that that article should be supplied or not.

323. They might refuse to accept the order?—Yes.

324. *Professor Gutteridge*: It would prevent this commission on selling the same thing to two parties and then playing them up one against the other?—There is no doubt that if a supervisory body were set up it would be a safeguard against all that sort of thing.

325. *Sir Thomas Allen*: How could they decide, seeing that there would be no military person allowed to sit on the board?—Obviously they would have to take advice, in the same way as Cabinet Ministers have to take advice from the particular department concerned, but they would have the responsibility of saying whether the order was to be put through or not.

326. *Sir Philip Gibbs*: Would not there be considerable pressure put upon the board, by the Government itself, perhaps, if they felt, for instance, that the country was losing a great deal of money, say two million pounds a year, by the restriction of the export of arms; would not this board be rather under pressure from the government to increase its exports, and so forth?—There might be a certain amount of pressure, but I am imagining a board which would be above that pressure and would be able to stand up to it. After all, they would have the advantage of having public support and opinion behind them.

327. *Professor Gutteridge*: It puts an end to tout-ing; I think that is the great thing?—Absolutely.

328. And all this business of going about bribing?

—And all newspaper opinion.

329. That comes to an end?—Yes.

330. *Chairman*: Thank you. We are much obliged to you for your evidence.

(Adjourned.)

APPENDIX

OUTLINE OF EVIDENCE TO BE TENDERED ON BEHALF OF THE LEAGUE OF NATIONS UNION BY THE RT. HON. VISCOUNT CECIL OF CHELWOOD, P.C.

1. Public Opinion.

The Union's experience goes to prove that public opinion is deeply moved, not by any particular instance of this commerce, but by distrust of the system by which profit is derived from making and selling armaments, and is increased by every deterioration in international relations. The Union, judging by the evidence of its public meetings, its correspondence, etc., believes that Lord Halifax truly summarised the situation in saying " . . . this is one of the questions which arouse a very sincere and profound feeling in the minds of our people. . . . Rightly or wrongly . . . the great majority of them . . . conceive this question of the private manufacture of and trade in arms to be directly connected with the great issues of peace and war, on which they feel more deeply and vehemently than on anything else. Therefore, regarding war, as they do, as the greatest evil to which the nation can be exposed, and regarding it indeed as only justifiable in cases of ultimate and extreme national necessity, they are . . . disposed to regard the preparation of instruments of war as too high and too grave a thing to be entrusted to any hands less responsible than those of the State itself, fearing any intrusion into so dangerous a field of any interests less imperative than national security and national necessity."—(*House of Lords, 27th March, 1935.*)

A remarkable indication of the strength of this public feeling is afforded by the votes recorded in the National Peace Ballot. The thirty-eight Societies who have united in asking British citizens over eighteen years of age to express their views by voting in this Ballot on five questions of international policy have included the following question:—

"Should the manufacture and sale of armaments for private profit be prohibited by international agreement?"

Out of the votes already recorded* 5,276,899 have answered this question in the affirmative and 391,946 in the negative.

Through its relations with the International Federation of League of Nations Societies and its correspondence with these and other foreign associations, the Union has learnt that the same strong feeling prevails in many other countries; in France, for instance, where, in response to public demands, proposals for the nationalisation of the industry have been put forward by Government; in the United States, where the Senatorial Inquiry was instituted in response to a similar public demand. The resolution on this subject unanimously adopted by the most recent Congress of the International Federation of League of Nations Societies held in May, 1934, is in the following terms:—

"XVIIIth PLENARY CONGRESS,

"Voices once more the demand of public opinion that prompt and energetic measures should be taken against those industrial and financial interests who derive profit from the manufacture of and traffic in arms by sustaining the war spirit and by paralysing all efforts for peace and disarmament."

2. Grave Objections to Private Manufacture and Trade.

The Union as a whole maintains that this anxiety of public opinion is well-founded and that the grave objections mentioned in the Covenant do not admit of serious doubt. At the same time the Union has no special means of ascertaining how any armament

firm conducts business. It cannot, therefore, profess to offer direct evidence of the evils in question. Its knowledge depends on published facts which cannot be unknown to the Royal Commission (e.g. the Shearer case, 1927; the Skoda case, which led the Roumanian Chamber of Deputies to recommend, on 27th March, 1935, the prosecution of General Cihosky and the former Minister, M. Popovici; and the Swedish Air Force scandal of 1931). The continuance of the war between Paraguay and Bolivia, despite the repeated efforts of the League of Nations to bring it to a conclusion, was made possible, according to the report of the Chaco Commission of the League, by the constant supply of arms to the belligerents by armament firms in other countries.¹ It is only too clear from the financial columns of the daily press, that the deadlock in the Disarmament Conference, together with the tension recently obtaining between the Great Powers, have added considerably to the profits of such firms.²

Such experiences lead to the conclusion that the commercial activity of the armaments trade tends to be inconsistent with negotiations for disarmament and the pacific settlement of disputes. It may easily become an influence hostile to the "good understanding between nations upon which peace depends".

While, therefore, the Union suggests certain ways in which the Royal Commission might use the powers conferred upon it to bring to light concrete evidence about the working of the industry (e.g. by calling for records and evidence of the McKinnon Wood Committee of 1919; by verifying communications from and contracts affecting British firms produced in the U.S. Senatorial Inquiry³), the Union's main contention is that unrestricted manufacture or sale of arms by private enterprise is, by the nature of the case, likely to become incompatible with the purposes of the Covenant of the League of Nations.

3. Remedies.

Opinion in the Union is divided upon the question whether the necessary remedy should take the form of the national and international control of private firms engaged in the trade or of a State monopoly of armament manufacture in each country. Proposals and suggestions for carrying into effect both these measures are contained in special reports produced by committees of the Union and published as a basis of study (pamphlets 347 and 359). The principal official documents presented to the League of Nations or the World Disarmament Conference on this subject have been reprinted by the League of Nations Union. This volume⁴ is at the disposal of the Royal Commission and will be used for reference by members of the Union whom the Royal Commission may desire to call before it. Members of the Union's special committees on this subject are at the disposal of the Royal Commission to answer questions or give explanations (Mr. P. J. Noel Baker, Colonel D. Carnegie, Miss K. D. Courtney, Major the Rt. Hon. J. W. Hills, M.P., Captain the Hon. J. de V. Loder, M.P., and Mr. H. S. Syrett), as are the Union's permanent officials who have given special study to this subject.

(a) State Monopoly.—A considerable body of opinion in the Union's ranks holds that the disturbing influence exerted by the private armaments industry can only be overcome by the transfer of that

¹ See Annex, NOTE A.

² See Annex, NOTE B.

³ See Annex, NOTE C.

⁴ "Documents on the Traffic in Arms."

* 11th April, 1935.

industry to the State. They regard it as a more efficient, if more drastic, remedy than the public control of the industry. They recognise the technical difficulties arising from the fact that the manufacture of products designed for military purposes and of those designed for peaceful purposes is intermingled. They hold, however, that the desired end could be achieved were the State to concentrate in its hands the completion of the manufacture of clearly defined categories of arms, munitions and implements of war such, for instance, as are laid down in the Draft Convention put forward by the American Government on 20th November, 1934. Those who take this view desire the suppression of the private manufacture of arms in the sense described in the following passage from the joint memorandum of the Danish, French, Polish and Spanish delegates presented to the Disarmament Conference (Conf. D./C.G./48, 3rd March, 1933):—

"The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms. The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destines it exclusively for military use."

They would also contend that the objection to the establishment of a State monopoly which arises from the present state of international law relating to neutrality could be overcome by the answer contained in the same joint memorandum and by other considerations of a like nature.⁵

(b) *Control*.—Another section of the Union's members, who are averse to nationalisation on grounds of international policy or national defence, or do not believe it to be possible on technical grounds, favour the general expansion and improvement of the system of export licences at present obtaining in Great Britain. Under the heading of improvements in this system would be included measures providing for publicity for orders, exports and imports, a system of inspection and the extension of the licence system to manufacture.

4. International Action.

The Union does not believe that a mere system of control without any limitation of armaments would

⁵ See "Documents on the Traffic in Arms," pp. 25-33.

be very effective. It is, however, argued that State monopoly would be of a certain value in counteracting the objections to which the Covenant refers even without an all-round limitation of armaments. Whatever remedy is adopted, the Union is united in its belief that such remedy, to be effective, must be embodied in an international convention. Its members would all be prepared to accept the general lines of the American Draft Convention⁶ as a first step, but most of them would desire to go further. This treaty, while leaving it open for the High Contracting Parties to have arms manufactured in private factories, in State arsenals, or in both, stipulates that they must assume entire responsibility for the manufacture and trade in their respective territories. The Union would regret any amendment to the draft convention which would lessen its effectiveness and hopes that the Royal Commission will recommend the signature and ratification of such a treaty under the second of their terms of reference.

Under the third term of reference it would be appropriate to suggest the modifications of the present arrangements in force in the United Kingdom relative to the control of the export of arms, which ratification of such a treaty would involve.

To sum up, the Union believes that the unrestricted manufacture and sale of armaments by private enterprise is open to grave objection. A considerable section of its members are of opinion that the most effective remedy would be to make such manufacture and sale a State monopoly: others are opposed to a State monopoly and believe it possible to establish effective control of the industry. They all believe that without limitation of armaments by international agreement neither remedy would be completely successful. They are further agreed that any remedy should be international in character applied by international agreement. All would desire agreement with the United States, and as a first step the adoption and ratification of measures not less effective than those which the American Government have recently proposed.

⁶ *Ibid*, pp. 80-101.

Annexe

NOTE A.

EXTRACT FROM REPORT OF CHACO COMMISSION TO THE COUNCIL OF THE LEAGUE OF NATIONS.

"The armies engaged are using up-to-date material; aeroplanes, armoured cars, flame projectors, quick-firing guns, machine guns and automatic rifles; the automatic weapons are available in great quantities, but the other arms are few. The arms and material of every kind are not manufactured locally, but are supplied to the belligerents by American and European countries."

NOTE B.

THE ARMAMENTS INDUSTRY AND THE DISARMAMENT CONFERENCE.

The Disarmament Conference began in January, 1932, and at first promised to succeed. It was at this time that Sir Herbert Lawrence (Chairman) stated at the annual meeting of Vickers, Ltd.:—

"Reductions in armaments, under the influence of public opinion, have affected adversely your company's trading result."

¹ League of Nations Document C. 154, M. 64, 1934, vii.
² 8th April, 1932.

Later, however, the progress of the Conference was suspended; and since October, 1933, the relations of the Powers of Europe have grown increasingly strained.

The result has been a marked increase in national armaments. The increase is most evident in air armaments. During 1934 the following states (among others) announced enlarged air-programmes: Britain, France, Italy, United States, Russia, Sweden, Spain, Portugal, Greece.

The following table gives such figures as can be ascertained for the air strengths of the Great Powers:—

Approximate numbers for military and naval aeroplanes of chief Powers—Various dates.

Explanatory Note.

There appears to be no authoritative or complete up-to-date list of figures for the air forces of the chief Powers. The development of the air weapon is one of the chief features of post-war armaments policy. Some Governments maintain great secrecy even as to the approximate totals of their air forces. Such statistics as are available are rarely based on the same calculations; some refer only to front line planes, others include reserves, or training planes and so on. Information is least available as regards

the development of the air weapon in Russia, in Japan, in Italy and recently in Germany. But in general such information as is officially supplied to the League Secretariat for the Armaments Year Books is inadequate and out of date.

The figures given below are therefore very approximate and must be regarded with some reserve. But they do mark, in a general way, a rapidly changing development of a new weapon for war of which the offensive, destructive capacities seem incalculable.

The authority for A and B in the following table is the *Foreign Policy Bulletin* "Limitation of Air Armaments", October, 1930. For C the authority is

official figures supplied by Governments to the Disarmament Conference in 1932: these give "total aeroplanes", but Russia, France and U.S.A. do not give full figures for reserves.

For D the authority is the German publication *Volkerbund*, 10th October, 1933; the figures are stated to include all active reserve, school and training planes, and some factory reserves. But the *Volkerbund* quotes no source for its detailed information. For E the authority is a statement by the British Under-Secretary for Air in the House of Commons on 20th February, 1934. For F the authority is the military aviation correspondent of the *Daily Telegraph*, 18th July, 1934.

	Great Britain.	France.	Italy.	Japan.	Soviet Russia.	U.S.A.
A.						
1919-1920—Effective aeroplanes ...	14,000 (3,300 front line)	12,000	—	—	—	10,000
B.						
1922—Front line	368	928	454	—	—	630
C.						
1931-1932—Totals	1,434	2,375	1,507	1,639	750	1,752
D.						
1933—Totals: active reserve and training, and on stocks.	2,400	4,500	1,500	2,000	2,700	3,058
E.						
1934—Front line	850	1,650	—	in process of development.	1,300 to 1,500	1,000 to 1,100
F.						
1934—Totals including reserves ...	1,434	3,000	1,500	1,939	1,700	2,351
1935—Established totals	1,500	3,020	1,640	2,100		2,660
1934—Front line	910	1,650	1,500	1,385	1,300 to 1,500	1,100

Note on German Air Strength.

By the Treaty of Versailles Germany is not allowed to possess any military or naval planes. But there is no doubt that since 1933 she has been, in spite of the treaty, building up an effective air force. Mr. Baldwin, in November, 1934, in the House of Commons, gave an approximate figure of over 400 machines. This total has since been outdistanced. In March, 1935, "Air personnel" became part of the official Reichswehr. On 16th March the German Government denounced the restrictions of the Versailles Treaty. The Foreign Secretary informed the House of Commons on 3rd April that, in the course of the Berlin conversations, Herr Hitler had stated that Germany had already attained parity with Great Britain.

Note on British Air Force.

Lord Londonderry, Secretary of State for Air, in a Memorandum attached to White Paper Cmd. 4822, 1935, on Air Estimates, stated that the British air programme, launched in July, 1934, would provide, on completion in 1938, a total first-line strength, in regular squadrons, of about 1,330 aircraft; and 130 aircraft in non-regular squadrons.

This competition in air armaments was reflected in the increased value of the shares of British aircraft manufacturers. Thus *The Investor*² reported:—

"The rise in aircraft shares."

"The demand for aviation shares was stimulated by the declaration of Mr. Baldwin that in the event of the failure of the Disarmament

Conference this country would feel compelled to embark upon a big programme for strengthening its air defences. Apparently there is little chance that the Conference will be saved, and consequently it is considered that there is every prospect of a substantial increase in the production of aircraft in this country, thus greatly augmenting the profits of the manufacturing companies. Apart from this, the past year or two has witnessed a very big increase in the development of civil aviation, and the chances are that this progress will become more pronounced in the future. It is not surprising, therefore, if many investors are now considering the advisability of buying aviation shares, despite the remarkable rise in prices already recorded this year, in view of the prospective increase in profits and dividends. Before considering whether such purchases can be recommended, it may be useful to indicate the upward movement in shares of the leading companies this year:—

	Lowest in 1934.	Recent Prices.	Rise from Lowest.
	s. d.	s. d.	s. d.
De Havilland	37 6	66 0	28 6
Fairey Aviation 10s. ...	25 7½	35 0	9 4½
Hawker 5s.	18 9	28 3	9 6
Napier 5s.	7 7½	14 0	6 4½
Rolls Royce £1 units ...	75 10½	105 6	29 7½"

The point of view of the aircraft manufacturers in regard to the reduction or expansion of armaments

² *The Investor*, 26th May, 1934.

is indicated by the following quotations from directors' speeches:—

Mr. S. R. Worley (Chairman) is reported to have said at the annual meeting of Handley Page, Ltd.¹⁰ in 1934:—

"The directors noted with satisfaction that on the breaking down of the Disarmament Conference the Government had decided upon increasing the Air Force to bring it more into line with the other nations, and they were hoping that in the near future they might receive further orders."

Mr. T. O. M. Sopwith, C.B.E. (Chairman), is reported to have stated at the 1934 annual meeting of Hawker Aircraft, Ltd.¹¹:—

"Excellent relations with Air Ministry."

"Our relations with the Air Ministry are on an excellent basis, and technical co-operation is carried out to the fullest possible extent. We have delivered during the past year more aircraft than any other firm in any one year since the war. (Applause.) We now manufacture eight different types of Hawker aircraft for the British Government. The Air Ministry continue to exercise their rights under the royalty agreement whereby Hawker 'Hart' type aircraft are sub-contracted to other firms and additional orders have recently been placed. At the moment it is no exaggeration to say that in their respective classes Hawker types are the foremost in the world, and it is important and interesting to record that the British Air Ministry are purchasing these air-frames at lower prices than any other Government is paying for comparative types. Not only so, but, despite their superior performance, Hawker types have proved most economical under service conditions and have definitely set new and considerably improved standards from the point of view of length of life before reconditioning."

"Foreign business continues to be satisfactory. During the year under review we have delivered aircraft to four foreign Governments, where they have given satisfactory results. At the moment orders are in hand for three foreign and two Dominion Governments. The total value of these orders is very substantial, and we anticipate that deliveries will be completed within the current financial year. Apart altogether from the sale of aircraft abroad, we have disposed of the manufacturing rights of certain of our products in South Africa, Denmark, Persia and Sweden, while options are held by certain other countries pending completion of tests. Royalty is accruing, and will accrue, from these sources and revenue is received for the purchase of manufactured components and spare parts for the construction and maintenance of these aircraft." . . .

"Strength of the R.A.F."

"Although there has been a considerable amount of discussion as to the necessity of increasing the Royal Air Force no active steps have yet been taken. It should be obvious to every right-thinking person in this country that not only the safety of the nation but the future of the Empire demands an Air Force at least equal to that of any other. The disparity with the strength of other Powers is perturbing and, whatever future policy is decided upon, the Royal Air Force is at present too small to cope with an emergency, and the reserves are too inadequate to cover the period between the outbreak of such emergency and the day when the industry could raise its output to meet the increased demand."

The export trade in armaments as a whole also profited during this period of international tension:—

Figures given by the Board of Trade on June 15th, 1934, indicate the increase of such

exports in the first five months of 1934 as compared with the equivalent period in 1933.

	1933.	1934.
	£	£
Ammunition	805,194	934,668
Arms	248,478	355,722
Torpedoes and submarine mines	28,854	85,061
Other ordnance	283,093	105,656
War vessels	Nil	276,896
Aircraft	560,023	724,233
	£1,925,642	£2,482,246

Foreign firms were similarly affected. Thus the following report¹² is available of the increased prosperity of the French firm of Hotchkiss:—

"An increase in dividend was announced at the annual meeting in Paris of the Hotchkiss Company, the large international armament firm."

"A dividend of 16s. 10d. a share for 1933 was announced compared with 15s. 7d. for 1932. Profits for 1933 were higher by approximately £200,000."

"The Hotchkiss Company makes arms of all kinds, including the famous machine-gun British, French and American capital is invested in the company. The Japanese Army machine-gun is made under Hotchkiss patents."

Vickers Armstrongs, in 1935,¹³ showed a profit in armaments business for the first time for five years:—

"Vickers-Armstrongs Limited—the main subsidiary in the Vickers group—has for the first time since 1930 earned sufficient profits to pay a full year's dividend on the 'A' Preference shares. This result is all the more gratifying as until December 31, 1932, the company had the benefit of the guarantee given by the Sun Insurance Company. The greatest credit reflects upon the managing director—Sir Charles Craven—and those associated with him for the satisfactory results attained. (Hear, hear.)"

"At Barrow there are now under construction four submarines, two destroyers, and three large passenger liners for the P. & O. Company, the Orient Company, and the Union Company of New Zealand. H.M.S. Ajax, a first-class cruiser, five submarines, and two destroyers were completed in 1934."

"During the year the naval yard at Walker-on-Tyne was reopened, and under construction there are H.M.S. Newcastle and H.M.S. Sheffield, both first-class cruisers of a new type, and two destroyers for the British Navy. The machinery for the cruisers is being built in the engine shops at Barrow."

"The total number of employees in the Vickers-Armstrongs works and subsidiary companies at the present time is 30,200 compared with 24,600 in January, 1934—(applause)—and as the order book of the Vickers-Armstrongs group is better than it was at this time last year, it is hoped that a steadily increasing number of people will be employed."

Other evidence of the same kind could doubtless be discovered by a closer examination of the stock markets, etc. But, indeed, it is a case to which the maxim *res ipsa loquitur* may well be applied.

NOTE C.

DOCUMENTS ILLUSTRATING THE INTERNATIONAL CONNECTIONS OF BRITISH ARMAMENT FIRMS CITED IN THE RECORD OF THE UNITED STATES SENATE INVESTIGATION INTO THE MUNITIONS INDUSTRY, SEPTEMBER 4TH-21ST, 1934.

(The figures given below are those attached to the documents as exhibits in the official American record, together with the part of the Inquiry to which they relate.)

1. Agreement between Imperial Chemical Industries as successors to Messrs. Nobel and two German companies: Part V, exhibit 512.

¹⁰ British United Press, 29th May, 1934.

¹¹ Vickers, Ltd., Annual Meeting, 2nd April, 1935.

¹² 5th July, 1934.

¹³ 12th July, 1934.

2. Letter from Sir Harry McGowan, Chairman of Imperial Chemical Industries, to the Du Pont Company: Part V, exhibit 516.
3. Letter from L. Y. Spear, Vice-President of Electric Boat Company, to Vickers Ltd. *re* supply of war vessels to Chile: Part I, exhibit 68.
4. Correspondence between Electric Boat Company and Sir Basil Zaharoff: Part I, exhibits 31, 32 and 36.
5. Military sales agents shared by Du Pont Company and Imperial Chemicals, Ltd., in Argentine, Brazil, Bolivia, Chile, Colombia, Ecuador, Paraguay, Uruguay and Venezuela: Part V, exhibit 483.
6. Letter from L. Y. Spear, Vice-President of Electric Boat Company, to Sir Trevor Dawson, Chairman of Vickers, 1924: Part I, exhibit 89.
7. Correspondence between Electric Boat Company and Vickers Ltd. *re* Brazilian Naval programme, 1933: Part I, exhibits 105-109.
8. Licence agreement of December 12th, 1902, modified by agreement of October 21st, 1913, *re* patents, secret processes and division of profits between Electric Boat Company and Vickers Ltd.: Part I, exhibits 11 and 11a.
9. Licence and sales agreement of March 4th, 1924, between same companies: Part I, exhibit 12.
10. Construction agreement of March 4th, 1924, between same companies: Part I, exhibit 12.
11. Statement of royalties received by Electric Boat Co. from Vickers Ltd. and firms licensed by Vickers, Ltd. (Mitsubishi, Japan; Vickers, Holland; de Schelde, Holland; Vickers, Australia; La Sociedad Espanola Construcion Naval, Spain; etc.): Part I, exhibit 8.
12. Licence agreement of January 1st, 1926, between Du Pont and Nobel Industries Ltd. (now I.C.I.): Part V, exhibit 473.
13. Relations between Du Pont and I.C.I., including sales agreement of October 10th, 1932, replacing agreement of 1928, for sale of military explosives in Europe, Asia and South America: Part V, exhibits 463-465.
14. Licence agreement of 1933 between Du Pont, I.C.I. and Canadian Industries Ltd. (jointly owned by Du Pont and I.C.I.): Part V, exhibit 475.
15. I.C.I. Ltd. Subsidiary companies and investment and contractual interests in world markets affecting Austria, Belgium, France, Czechoslovakia, Germany, Roumania, Spain, Hungary, Africa, Argentine, Australia, Canada and Chile. Sales agreements with explosives and chemical companies in Belgium, France, Germany, Italy, Norway, Africa and Switzerland: Part V, exhibit 461.
16. Report from Sir Basil Zaharoff to Electric Boat Company, 1927, *re* Spanish naval contracts: Part I, exhibit 35.
17. President of Electric Boat Company to Sir Basil Zaharoff, 1928: Part I, exhibit 37.
18. Minutes of a meeting between representatives of Du Pont and Nobel Industries, Ltd. *re* manufacture of explosives in Chile, 1927: Part V, exhibit 514.
19. Letter from Soley Armament Company, Ltd. to American Armament Corporation, February 3rd, 1934, *re* sale of arms in China: Part III, exhibit 256.
20. Letter from Soley Armament Company to the American Armament Corporation *re* indirect supply of arms to Bolivia: Part III, exhibit 260.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

TAKEN BEFORE THE

2

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

SECOND DAY

WEDNESDAY, 22ND MAY, 1935

WITNESSES—

Sir EUSTACE H. T. D'EYNCOURT, Bart., K.C.B., F.R.S., LL.D.,
D.Sc.

ON BEHALF OF THE LEAGUE OF NATIONS UNION:—
Major The Right Hon. J. W. HILLS, P.C., M.P.
Captain The Hon. J. DE V. LODER, M.P.

ON BEHALF OF THE NATIONAL PEACE COUNCIL AND
ASSOCIATED ORGANISATIONS:—

Mr. W. ARNOLD-FORSTER.

Mrs. HARTREE (NATIONAL COUNCIL OF WOMEN).

Mr. S. F. PERRY, J.P. (CO-OPERATIVE PARTY).

Mr. F. C. WOODS (UNION OF POST OFFICE WORKERS).

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PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

SECOND DAY

Wednesday, 22nd May, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKS, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Sir EUSTACE HENRY TENNYSON D'EYNCOURT, Bart., K.C.B., F.R.S., LL.D., D.Sc., called and examined.

331. *Chairman*: What has your experience been? First of all, what was your original training, and then would you tell us what offices you have held of different kinds?

Sir Eustace d'Eyncourt: Originally I was trained as an apprentice at Messrs. Armstrong, Whitworth's, at their Elswick Works, Newcastle, where I served my time in various trades as an apprentice. During part of that time I went to the Royal Naval College, Greenwich, to do the course of naval architecture there. I began that apprenticeship in 1886, and I was with Messrs. Armstrong until 1912, with the exception of four years, when I was naval architect with the Fairfield Company at Glasgow on the Clyde. I worked on ship designs and to some extent on gun mountings, and so on, when I was at the Elswick Works. In 1912, when Sir Philip Watts left the Admiralty, I was appointed Director of Naval Construction. In that position I was responsible for the design and construction of His Majesty's ships, and I held that position until 1924, when I resigned. While I was at the Admiralty I was not only responsible for the design of the ships, but I was also responsible for the design of the airships, which were just beginning to be developed at that time; and, further, Mr. Churchill, when he was First Lord of the Admiralty, asked me if I would undertake the responsibility of forming a committee to develop land ships. That committee produced the first of the tanks which fought in the war. After my time at the Admiralty I returned to Messrs. Armstrong, Whitworth with a seat on the board, as a director, and as naval architect in charge of the design, and construction, of all their ships. Soon after that there was a change in the affairs of the company, and I had to leave the board, and since that time I have been retained as adviser by Vickers-Armstrong (Vickers having amalgamated with Messrs. Armstrong); and also when I left the Admiralty I was retained as adviser to the Admiralty for the ships which were under construction, which I had designed, such as the "Rodney" and "Nelson" and various others.

332. *Chairman*: Have you retired now altogether from any form of practice?

Sir Eustace d'Eyncourt: I work for Vickers-Armstrong to some extent, and I am a director of the Parsons Steam Turbine Company at Wallsend, and I do a certain amount of consulting work as a naval architect and engineer, too.

333. *Chairman*: While you were serving your time with Messrs. Armstrong did you go through the whole of the shops, or were you confined to any particular branch of their business?

Sir Eustace d'Eyncourt: No; I went right through the shops and worked at everything. I was a riveter, carpenter, and blacksmith and other trades; but that was in the shipyard, not in the ordnance works.

334. *Chairman*: I think you have prepared and submitted a statement, have you not, dealing with the matters which we as a Commission have to express an opinion upon?

Sir Eustace d'Eyncourt: Yes.

335. *Chairman*: Would it be convenient that you should read it, do you think?

Sir Eustace d'Eyncourt: Yes; I shall be very glad to read it, if you wish.

336. *Chairman*: Very well.

Sir Eustace d'Eyncourt: (*reading*) The aspect of this question to which I specially wish to draw attention is the necessity of ensuring that war material should be of the best and most efficient design and construction. That this is a necessity is obvious, whatever the decision on the question of limitation of armaments may be; although it may be argued that the more limited the quantity the better still should be the quality.

Having had experience with establishments manufacturing armaments, and with government departments, for nearly fifty years, I have been in a position to form an opinion on the subject; and as the result of the most careful study of the question, my considered opinion is that to abolish the private manufacture of arms altogether and put the whole thing under government control would certainly not make for efficiency.

There are many reasons for arriving at this opinion.

With private firms, not only is there competition between one firm and another—whether in the case of home firms against one another, or British firms versus foreign firms—but there is a strong incentive to individuals to find some new and improved devices which will not only help the firm for whom they work but will also improve their personal position with that firm. This is a consideration which does not exist to nearly the same extent in government departments.

The average man who enters government service knows that he accepts a position and a salary of moderate amount, and his great desire is to continue to do his work in the position in which he finds himself, and he does not wish to take on any added responsibility, nor to get into bad odour with his superiors by making suggestions which may probably be scouted as impracticable; and above all he does not want to make any mistakes in his work which can get him into trouble.

22 May, 1935.]

SIR EUSTACE HENRY TENNYSON D'EYNCOURT, Bart., K.C.B.

[Continued.]

This attitude, which my experience shows exists widely in various departments of the government service, does not make for great improvements or help inventive genius. Though, of course, there are outstanding men who have done marvellous work for the Government, a little reflection shows that practically all the great inventions and improvements in engineering, etc., have emanated from men outside the government service. It is only necessary to mention the Armstrong gun, Parsons steam turbine, wireless, the internal combustion engine, the aeroplane, amongst many others, all of which were invented and developed by private enterprise.

During the war, numbers of men in the government service certainly developed various new inventions; but most of these were men who at any rate started in a private capacity, and only came into government service as a war-time measure.

A notable instance which came under my own purview was that of the tanks. This particular form of mechanised warfare which did so much in the latter years of the war, was definitely given up as impossible by the War Office. Mr. Winston Churchill (who was then First Lord of the Admiralty) with great foresight saw the possibilities of the suggestion, and asked me—as I was a designer of warships—to form a committee to produce “land ships.” The men who did this work were men from private establishments, and as the constructors under me at the Admiralty were fully occupied with ships I was not able to engage their time on the matter. The men who developed the design and construction of the tanks were all drawn from private sources.

I have seen enough of work, both in government service—the Munitions Department, the War Office and the Admiralty—to say that it is of the utmost importance to be able to draw upon the genius and skill of men outside the service for new developments and thus obtain the most perfect and efficient material for our purposes.

There are several small points which tend to damp down the ardour and keen inventive capacity of men in the government service. For instance, a patent taken out by a servant of the Admiralty, under his conditions of service must be assigned to the government department for which he works.

Another point is that with the building of warships in particular—and in all government contracts placed outside—the materials being of the highest class helps to produce a large number of workmen of the highest skill in various branches of engineering, and it has been of the greatest importance that these men have been distributed about the country and have used their skill not only on the production of war material, but also on the highest class of products for civilian and private work; and it was largely this fact which gave us the lead in engineering, shipbuilding and kindred industries.

Already the gradual reduction of the number of these men in private works has had its effect; and the foreigner has of late years—and especially since the war—become almost, if not quite, equal to the British workman in the production of the best material of various kinds. If a sudden demand for skilled labour be made at any time it is vital to be able to draw men from all parts of the country, and not merely from a few government establishments.

Whilst advocating the private manufacture of armaments, and although I have made the remark that I do not think the government service is a favourable atmosphere for the production of the most efficient and latest designs of war material, I do not for a moment want to imply that government servants are not fully equal to men outside; but the conditions are such that they have not the same chance of developing or showing the inventive capacity of which they are capable.

It is my belief that if the supply of war material were left entirely in the hands of government establishments, we should achieve a production of material of a sound and stereotyped kind but of an average mediocrity, which would not realise the best or latest improvements which are likely to be obtained if the production of war material be more widely spread in various private establishments throughout the country.

337. *Chairman*: Is there anything you wish to add to that statement?

Sir Eustace d'Eyncourt: Yes. I should like to add that one of the troubles with regard to the idea of a new form of mechanical apparatus, or whatever it is, under the government service is that it is so much easier in private firms to get the money quickly. A young man comes along with a good idea and it is submitted to a few of the head people, and they say: “Well, what will it cost to start?” and then they say: “We shall want some new plant—£5,000 or something”; and you can get that through directly. In the government service it has to go through the Treasury and round and round, and a lot of people make objections to it. All these things put the brake on the production of new inventions.

338. *Chairman*: Your evidence is directed practically entirely to the question of efficiency?

Sir Eustace d'Eyncourt: Yes.

339. *Chairman*: In your view, and as a result of your experience, you think that you are more likely to get efficient national service if the private factories are retained?

Sir Eustace d'Eyncourt: Yes, emphatically so.

340. *Chairman*: On the question of efficiency, of course a great deal depends upon whether you have an efficient staff of skilled men, does it not?

Sir Eustace d'Eyncourt: Yes.

341. *Chairman*: Assuming that it was thought right to abolish private manufacturers of arms and nationalise the service, would there be a difficulty, in your opinion, in retaining or supplying a sufficient number of skilled men in a national factory?

Sir Eustace d'Eyncourt: Yes, I think there would be considerable difficulty. The trouble is the individuals; it is not easy for them to come to the top as soon as they have got into the government service.

342. *Chairman*: Yes; but if there was a government service for the supply of munitions, it would be confined to the supply of munitions, I assume?

Sir Eustace d'Eyncourt: Yes.

343. *Chairman*: In private factories are there men employed in branches of the work of the factory other than arms, who can be drawn into the arms service in the event of pressure?

Sir Eustace d'Eyncourt: Yes, certainly.

344. *Chairman*: I mean, is the amount of skill that they acquire in other branches of work of value if there is found to be a great pressure of work in the manufacture of arms?

Sir Eustace d'Eyncourt: Yes, it would certainly be of great value.

345. *Dame Rachel Crowdy*: You lay great stress on the fact that initiative is cramped in government service. That is one of your chief arguments, is it not, against government manufacture?

Sir Eustace d'Eyncourt: Yes.

346. *Dame Rachel Crowdy*: It seems to me to be rather a sweeping statement. You say: “. . . the conditions are such that they have not the same chance of developing or showing the inventive capacity of which they are capable.” Then you also say at the beginning: “This attitude, which my experience shows exists widely in various departments of the government service, does not make for great improvements or help inventive genius.” Is that your general opinion of government service? I have

22 May, 1935.]

SIR EUSTACE HENRY TENNYSON D'EYNCOURT, Bart., K.C.B.

[Continued.]

in my mind, of course, at the moment the Post Office, and I think that none of us would deny that there has been a great deal of scientific research in the Post Office organisation and a great deal of invention within the Post Office, which, after all, is essentially a government service?

Sir Eustace d'Eyncourt: Yes. Of course, I would not for a moment deprecate the research work done by the Department of Scientific and Industrial Research, with which I am connected. The National Physical Laboratory do magnificent work in the research line, and the work they do and the researches they complete are of the greatest help in developing things like aeroplanes, and so on; but, at the same time, I think these improvements are more quickly developed by private firms, who have the advantage of being able to consult the government research departments.

347. *Dame Rachel Crowdy:* Therefore you really feel that it is in connection with this one particular subject, armaments generally, that research is cramped within government departments?

Sir Eustace d'Eyncourt: Yes. I have been thinking about armaments in the whole matter; I have not thought about the Post Office particularly.

348. *Sir Kenneth Lee:* One of your points is that there will not be skilled men available. Are skilled men so important to-day as they were before the war?

Sir Eustace d'Eyncourt: I should say so—even more so. Things are becoming more scientific, and more accurate workmanship is wanted in almost everything.

349. *Sir Kenneth Lee:* But is not the machinery more automatic?

Sir Eustace d'Eyncourt: Yes; but someone has to make the machinery; that is one of the great points. The fellows who make the jigs and gauges are perhaps the most skilled men of all.

350. *Sir Kenneth Lee:* But do not they make them now in the government service?

Sir Eustace d'Eyncourt: Yes, I suppose they do to a certain extent; but you want a lot of these men, and when a large quantity of material was wanted there would probably be a shortage of the most skilled men who make the jigs and gauges and who carry out the draughtsmanship, and so on, of all this very complicated machinery, which is getting more complicated and scientific every day.

351. *Sir Kenneth Lee:* But it is more on the gauge side than on the ordinary production side that you think skill is required?

Sir Eustace d'Eyncourt: No; I think both.

352. *Sir Kenneth Lee:* You say that people working for private firms get patents and keep them for themselves. Is that so?

Sir Eustace d'Eyncourt: I do not think they keep them for themselves; they take out a patent and try to develop the invention and make money out of it.

353. *Sir Kenneth Lee:* Do not nearly all large concerns put their servants under some obligation?

Sir Eustace d'Eyncourt: A great many do; that is quite true; but I think the servants generally get a good deal of consideration from the firm for what they have done; and, of course, there are a large number of inventions which are made by people, in their private capacity, who are not in the service of any big firm at all, perhaps.

354. *Sir Kenneth Lee:* As I understood your evidence, I thought you meant that such firms as Vickers did not put their people under any obligation.

Sir Eustace d'Eyncourt: I do not know exactly what obligation Vickers put their people under, but I know that in the ordinary government service there is not much encouragement to the inventor in the ordinary way.

355. *Sir Kenneth Lee:* But is it not probably because they have not had the opportunity?

Sir Eustace d'Eyncourt: Well, I have endeavoured to show in my memorandum how difficult it is for them to bring their inventions forward and to get them adopted and encouraged, to find money to start them, and so on, in the government service. Of course, in the war it was very much easier, because money was no object and one got away with the thing; but in the ordinary way the government arrangements are very clogging for developing a new idea.

356. *Sir Kenneth Lee:* Your evidence suggests, of course, that people working for the State do not give of their best?

Sir Eustace d'Eyncourt: Well, I think they give of their best in a sort of way, subject to the feeling that they do not want to add to their responsibilities or get into bad odour from being a nuisance to their superiors, which comes in a good deal.

357. *Mr. Spender:* Might not it possibly be said that the conditions you describe are the natural result of relying mainly on private firms, and that you might have another system in which the incentive to private effort and to research and enterprise might be as strong as they are, say, in the Post Office? I am not expressing any opinion as to the right or wrong solution, but I am putting that to you on this particular point.

Sir Eustace d'Eyncourt: It would want a great deal of reform and re-modelling of the procedure, and so on.

358. *Professor Gutteridge:* If one approaches this from the point of view of our national security, I suppose the most important point is to ensure an adequate reserve of highly trained men. Is that so?

Sir Eustace d'Eyncourt: Yes, I think so.

359. *Professor Gutteridge:* Is it your view that that would be quite impossible under a national system?

Sir Eustace d'Eyncourt: I think it is very much more difficult; and I think, as I have said, that the results of most of the great inventions coming through private individuals indicates that.

360. *Professor Gutteridge:* Some of these things have been invented by government servants, have they not? Was not the paravane invented by a member of His Majesty's service?

Sir Eustace d'Eyncourt: The paravane was invented by Commander Burney, and it was developed, I think, in conjunction with Messrs. Vickers.

361. *Professor Gutteridge:* For our purpose he may be regarded as an employee of the State, I take it, at the time he invented the paravane?

Sir Eustace d'Eyncourt: Yes; but it was not his particular line. He was a naval officer.

362. *Professor Gutteridge:* You draw a distinction, do you?

Sir Eustace d'Eyncourt: He was in the sense of being a private person *vis-à-vis* the paravane.

363. *Professor Gutteridge:* Supposing you had a national system, what would you have to do in order to provide for this adequate reserve of skilled men? Have you ever considered that question?

Sir Eustace d'Eyncourt: I think it would be very difficult. I think they would always have to draw on private sources when an emergency arose. You would have to get skilled men from outside; there would not be enough otherwise.

364. *Professor Gutteridge:* There are certain trades available at once in time of war, are there not? I believe that watchmakers can be used for some of the more delicate work on gun sights, and that sort of thing?

Sir Eustace d'Eyncourt: Yes, I dare say. Motor-car people, of course, are very useful, but in time of war probably they are wanted for making more motor cars.

365. *Professor Gutteridge:* You mean there may be a shortage?

Sir Eustace d'Eyncourt: There would be a shortage, I am sure.

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[Continued.]

366. *Professor Gutteridge*: I am asking you these questions because what is troubling me is this: How would it be possible under a national system to maintain this reserve?

Sir Eustace d'Eyncourt: I think it would be very difficult to maintain a reserve of highly skilled people. It would want considering.

367. *Sir Philip Gibbs*: When you say you advocate the private manufacture of armaments, I imagine you are looking at it mainly from a technical point of view; you are not considering at all the moral side of the question and the alleged abuses of private manufacture and private traffic in arms?

Sir Eustace d'Eyncourt: No.

368. *Sir Philip Gibbs*: You have left that entirely out of your consideration.

Sir Eustace d'Eyncourt: Yes; but, of course, I have had considerable experience in trying to get orders for warships, and so on, in foreign countries.

369. *Sir Philip Gibbs*: Do you agree that there are abuses with regard to the private traffic?

Sir Eustace d'Eyncourt: I have not come across any in going to foreign countries for orders, with which I have had considerable experience. I always found that the foreigner knew what he wanted—he wanted to get a better ship, or gun, or whatever it was, than his neighbour and potential enemy, and that was all that he thought about. There was never any inducement from any firm that I represented to try and make him go to war, or anything of that sort.

370. *Sir Philip Gibbs*: You did not find it necessary to indulge in a little "backsheesh"?

Sir Eustace d'Eyncourt: Personally, no.

371. *Sir Philip Gibbs*: Or your agents?

Sir Eustace d'Eyncourt: It is rather difficult to speak about all the agents. It is rather difficult to define "backsheesh," I think, too.

372. *Sir Philip Gibbs*: Let us say friendly presents?

Sir Eustace d'Eyncourt: I really did not come across anything of that kind myself.

373. *Sir Philip Gibbs*: I see you lay very great stress on efficiency and on inventive genius with regard to arms, and I want to ask you one or two questions on that point. I was wondering, for instance, whether you would agree that high efficiency in the production of destructive weapons is apt to lead to dangerous competition with other countries who naturally want to keep pace with new inventions. Do you think that does in fact lead to international competition?

Sir Eustace d'Eyncourt: Everyone wants to get the best, and we do not want to be left behind, I take it.

374. *Sir Philip Gibbs*: But do you think perhaps that inventive genius applied to destructive weapons is rather double-edged in its effect, and that any invention made in this country is very quickly imitated by foreign nations?

Sir Eustace d'Eyncourt: Yes. I think everyone tries to get the best, whether from their own sources or from learning from the foreigner or whoever it may be.

375. *Sir Philip Gibbs*: I imagine you would agree that the intensive progress in the science of slaughter has been adopted by the world generally and not by one nation; that is to say, you see a steady progress in the efficiency of weapons throughout the world?

Sir Eustace d'Eyncourt: Yes. It is not always the progress in slaughter; there is protection as well, for instance, armour, and so on.

376. *Sir Philip Gibbs*: Do you think it is more likely that private firms would pass on their patents of new inventions to foreigners, or do you think it would be more probable that they would pass on their inventions under a national system?

Sir Eustace d'Eyncourt: No, I should not think so. Surely government control could stop anything of that sort.

377. *Sir Philip Gibbs*: But do you think they are stopping it?

Sir Eustace d'Eyncourt: Of course, as a matter of fact, any invention which is brought out, or any patent, very soon becomes public property, universally almost. In fact, some of the most secret and confidential and important things are not patented, on account of the mere fact that if they are patented the nature of the invention is published.

378. *Sir Philip Gibbs*: I imagine that private firms, if they do produce a new invention, do go about trying to sell it to other countries?

Sir Eustace d'Eyncourt: Of course, inventions which are submitted first to our own departments—the War Office, the Admiralty, or whatever it is—can be made absolutely confidential; there are confidential patents which the inventors have not been allowed to publish.

379. *Sir Philip Gibbs*: Take the aeroplane manufacturer; surely a firm like Handley Page would have a perfect right to sell its patent to foreign countries?

Sir Eustace d'Eyncourt: Yes, I dare say.

380. *Sir Philip Gibbs*: From your experience, would they be under any obligation to sell them solely to the British Government?

Sir Eustace d'Eyncourt: No, I do not think so, not unless it is made a confidential matter, and he is sworn not to divulge it to any foreign country.

381. *Sir Philip Gibbs*: Has the government the right to impose that obligation upon a firm?

Sir Eustace d'Eyncourt: I think the government has a right to do that about any invention, and I think the people are patriotic, too.

382. *Sir Philip Gibbs*: Would not you agree that in general practice these private firms are not under any such obligation, and do not regard it as any sort of moral defect on their part to sell their patents to foreign countries?

Sir Eustace d'Eyncourt: No. I think that any British firm would keep for its own country anything of real value, particularly if requested; apart from any definitely legal obligation, it would keep it within the country and not sell it abroad.

383. *Chairman*: It must depend upon the firm, I suppose?

Sir Eustace d'Eyncourt: Yes.

384. *Chairman*: Some firms would do whichever paid them the best; other firms might do the patriotic thing?

Sir Eustace d'Eyncourt: Yes, possibly.

385. *Sir Philip Gibbs*: Take, for instance, a firm like Vickers, which has many international affiliations; would not it be necessary for them to pass on any secret of manufacture to their other companies?

Sir Eustace d'Eyncourt: Oh, no, not necessarily.

386. *Sir Philip Gibbs*: Do you think it is likely that they would do so?

Sir Eustace d'Eyncourt: I could hardly say; I am not a minor prophet.

387. *Sir Philip Gibbs*: This is within your own knowledge. Have these inventions been sold in the past to foreign firms?

Sir Eustace d'Eyncourt: Certain inventions have become available for foreigners, no doubt; and all inventions become available; it is only a question of time.

388. *Sir Philip Gibbs*: You see, the point that I am driving at, and I think it is rather an important point, is this: that inventive genius applied to arms is perhaps a double-edged weapon; because as quickly as any new invention is adopted, or some superiority obtained, by one country, it is immediately countered by a foreign nation. For instance, I should like to ask you whether that did not happen with regard to the Dreadnoughts? Were you one of the designers of the Dreadnoughts?

Sir Eustace d'Eyncourt: No. I was not at the Admiralty then; Sir Philip Watts was the

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Director of Naval Construction when the Dreadnoughts were designed.

389. *Sir Philip Gibbs*: Do you agree that when we decided upon the Dreadnought type, that was instantly countered by Germany building big ships, and our superiority really did not exist for more than a very short time?

Sir Eustace d'Eyncourt: I think that applies to everything. You can only get ahead for a limited time.

390. *Sir Philip Gibbs*: Does not that rather lead to the conclusion that this progress in arms is not really valuable to any country?

Sir Eustace d'Eyncourt: Of course, if you went back to the original base you would get back to bows and arrows and that sort of thing.

391. *Professor Gutteridge*: I have heard it said that if the British army had been armed with the long bow at Waterloo the defeat of the French would have been even greater than it was, because the range of the long bow was so much greater than that of the Brown Bess.

Sir Eustace d'Eyncourt: We beat them, anyway.

392. *Sir Philip Gibbs*: With regard to the tanks, of which you were one of the designers, I imagine that most countries now have some form of tank?

Sir Eustace d'Eyncourt: I imagine so—all the progressive ones.

393. *Sir Philip Gibbs*: Based on our own experience and models?

Sir Eustace d'Eyncourt: Probably.

394. *Sir Philip Gibbs*: There, again, you see that our invention of the tank, which was very helpful for a short time, might not be at all helpful to us if we have another war; it only intensifies the destructiveness of all nations?

Sir Eustace d'Eyncourt: If the Germans had been six months ahead of us they would have won the war with tanks—if we had not had them. That is the whole point. You have just got to get ahead. It is like breeding racehorses; you have just got to win the Derby by a little bit.

395. *Sir Philip Gibbs*: I imagine that applies more to countries in a state of war than in a state of peace; that is to say, the superiority is enormously valuable if you can get it when you are actually at war?

Sir Eustace d'Eyncourt: Perhaps so.

396. *Sir Philip Gibbs*: But it is more difficult when you have adopted the invention before war?

Sir Eustace d'Eyncourt: Right through peace and war you have to keep up the whole idea of keeping the initiative in invention, in my opinion.

397. *Sir Philip Gibbs*: I will just ask you one final question on the same point. Do you think that it is really an advantage to one country to keep on increasing the efficiency and destructiveness of its weapons?

Sir Eustace d'Eyncourt: Certainly, *vis-à-vis* other countries.

398. *Sir Philip Gibbs*: That is to say, you must always be striving for superiority?

Sir Eustace d'Eyncourt: Yes.

399. *Professor Gutteridge*: It is sometimes said that there are certain advantages in selling armaments to foreigners; for instance, I have heard it said that by selling armaments we obtain knowledge of what they are doing. Do you agree?

Sir Eustace d'Eyncourt: Yes, we do, no doubt.

400. *Professor Gutteridge*: I suppose if we sell warships to a particular country we know what we have to meet in time of war?

Sir Eustace d'Eyncourt: Yes, certainly. You find out what they are doing.

401. *Professor Gutteridge*: Do you regard that as an advantage?

Sir Eustace d'Eyncourt: Yes, I certainly do; and, of course, the fact of building warships for a foreigner gives us the advantage of having in our possession the warships that are building. When the war began we took four battleships for which the British taxpayer had not paid a penny; we were able to take them over and they became an asset to us in the war.

402. *Professor Gutteridge*: Were those the Turkish vessels?

Sir Eustace d'Eyncourt: Two Turkish.

403. *Professor Gutteridge*: And two Chilean?

Sir Eustace d'Eyncourt: Yes. I think there were also some smaller ships, too.

404. *Professor Gutteridge*: Your work has been on the constructional side, has it not?

Sir Eustace d'Eyncourt: Design and construction.

405. *Professor Gutteridge*: You are not familiar with the ordnance side, are you?

Sir Eustace d'Eyncourt: Of course, incidentally, one has a good deal to do, certainly, with the bigger gun mountings, and so on.

406. *Chairman*: There is one question I wanted to ask you, and there are two questions that I have been asked to ask by representatives who are here listening to what is going on. *Professor Gutteridge* has raised an important point about maintaining an adequate reserve of skilled men. Assuming that nationalisation of armaments was accepted and adopted, the nation would then desire, I dare say, to keep its plant efficient and to provide sufficient work to keep their men skilled, and would wish also to provide opportunities for training the young men to come on and become skilled men?

Sir Eustace d'Eyncourt: Yes.

407. *Chairman*: If that is so, do you think that the governments who were making arms would be likely to become themselves traders in arms in order to keep their plant and their men, and so forth, efficient? Do you think there is a danger of that, because in peacetime I assume the amount of work which would be required to be done in a national factory would be relatively small?

Sir Eustace d'Eyncourt: Yes, no doubt. That is one of the points, incidentally, which I wanted to make; that by placing government orders where the very highest class of material is required, and the greatest skill is spread widely through the country, you have a heaven of the greatest skilled men everywhere, and if they are in private works their skill can be used for civilian and private work during the time when they are not actually doing the war material for the government—they can do the highest class of work for civilian purposes.

408. *Chairman*: The two questions I have been asked to put to you, and I am quite prepared to put them, are these: Whether you consider that the present private firms contracting for the Admiralty are independent, and whether in the true sense they are competitors for government orders, or are they closely interlocked?

Is there, for example, any connection between Vickers, and Brown, and Parsons—do you know whether there is any working connection between those firms?

Sir Eustace d'Eyncourt: No, I do not think so. In fact I am sure not. Of course, they know what the other firms are doing. For instance, Parsons, with which I am connected, make machinery for Vickers' ships, and we help to design the machinery on Brown's ships, and so on.

409. *Chairman*: I think that what the questioner wants to know is whether, in the event of a government order going to be placed, other firms put their heads together in order to fix a price instead of acting as competitors. I think that is the object of the question. Do you know anything about that?

Sir Eustace d'Eyncourt: No, I do not know anything about that.

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410. *Chairman*: The other question is this: Could the witness amplify his statement with regard to the experience of armament firms during the war with regard to the ability of private firms to provide efficient personnel and equipment? It is common knowledge that there was a great deficiency of personnel and equipment amongst the private firms when once the enormous requirements of the country were realised. Is not that a fact?

Sir Eustace d'Encourt: Yes.

(The Witness withdrew.)

Major the Rt. Hon. JOHN WALLER HILLS, P.C., M.P., and Captain the Hon. JOHN DE VERE LODER, M.P., on behalf of the League of Nations Union, called and examined.

413. *Chairman*: Will you give the reporter your full name, Major Hills?

Major Hills: My name is John Waller Hills; I am a Member of Parliament, and I served in the Ministry of Munitions in the war when I came home from the front wounded, and I also served on the Temporary Mixed Commission at Geneva which sat for three years, a sub-committee of which was appointed to consider the question of traffic, and another sub-committee on the question of manufacture. I did not sit on the manufacturing committee, but I was rapporteur of the traffic committee, and I myself drafted the report which formed the basis of the Convention of 1925, which is now before the nations for ratification and acceptance; and I think I may say that they largely took my draft, and that a large part of the present Convention is what I drafted.

414. *Chairman*: And you, Captain Loder?

Captain Loder: My name is John de Vere Loder; I am a Member of Parliament, and a member of the executive committee of the League of Nations Union, on one of whose sub-committees for investigating this particular question I have sat; otherwise I have not any specific connection with the armaments question. It is principally as a member of the Council of the League of Nations Union that I am here.

415. *Chairman*: Are you both members of the League of Nations Union?

Major Hills: Yes. May I add that I am Vice-Chairman, but I do not speak on behalf of the Committee.

416. *Chairman*: No; I understand that.

Major Hills: Lord Cecil has given that evidence.

417. *Chairman*: Lord Cecil told us that there was a difference of opinion amongst members of the Union, and that he represented one view, and I think you two gentlemen represent the other?

Captain Loder: Yes.

418. *Chairman*: I suppose there are a very large number of members of the Union, are there not?

Major Hills: I think about 400,000, or something of that sort.

419. *Chairman*: And there is this difference of opinion?

Major Hills: Yes.

420. *Chairman*: You have prepared a statement. Would you like to go through that statement and read it to us?

Major Hills: (reading) 1. Private manufacture is attacked on the practical ground that it encourages war and on the moral ground that it is wrong to make a profit out of killing. Nationalisation, by which we mean the system outlined by Lord Cecil of Chelwood, is proposed as the remedy for both. On the practical issue we consider that licence and control of manufacture and of traffic would at least do as much to prevent war as would nationalisation, and that it avoids the evils of the latter. We will deal with the practical issue first, and with the moral question afterwards.

411. *Chairman*: I assume that that is what is referred to. I mean, the private firms were unable to rise to the great emergency of the Great War?

Sir Eustace d'Encourt: Of course, they had not nearly all the plant which was necessary; but they had a good deal and they had the skilled men, and it was easier to develop their plant and teach the younger men to do the better class work, and so on.

412. *Chairman*: We are very much obliged to you, Sir Eustace.

2. *Manufacture of Arms: the American Plan.*—

For controlling manufacture, we suggest broadly what is known as the American plan, namely, the Articles submitted to the Disarmament Conference by the American delegation last year (Conf. D. 167). The Commission no doubt is familiar with this document, so we will only say that it would control manufacture by the three principles of licence, inspection and publicity. No arms could be made without a government licence. All manufacture and all sales and purchases would be matter of public knowledge. No arms would be sold except to a government whose name would be known, or in excess of what is allowed by a disarmament convention. All arms factories would be inspected periodically by members of a Permanent Disarmament Commission established at Geneva. The results of inspections, together with particulars of licences, sales and purchases, would be published. We assume that (in the absence of an international disarmament convention) the inspection would be confined to the verification of the returns furnished by the different governments.

This system must be accepted by the chief manufacturing countries, which are not many, in order to be effective. It could not operate if a substantial number of the producers were left out. It certainly would be useless for Britain alone to enforce it leaving the rest of the world free.

We regard international inspection (Chap. IV) as essential. Inspection by nations themselves would not give that confidence on which security depends.

3. *Control and Licence v. Nationalisation of Armament Factories.*—Nationalisation in Britain alone, while leaving the rest of the world free, would not help to prevent war, so that can be disregarded. Nationalisation must include all producing states. Now, if no arms are made except by governments, all nations—down to the smallest South American republic—must either start state factories of their own or come to some arrangement with a producing power for supply. As the world is, nations must be armed. The great majority of states would be in the second class, for they have neither the minerals nor the skilled direction nor the technical equipment necessary for so specialised a manufacture. They would come to an agreement with a producing power. Now, such a bargain must be two-sided. The producing power must be certain that the arms are never employed against itself or its allies; the importing power must be certain that it always gets the arms it wants, especially in the crisis of a doubtful war. It must also be sure that it is to be the judge whether arms are supplied or not, for it could not run the risk of being left in the lurch in its necessity. You would have restricted its power to buy from many sources. Therefore the bond between producer and importer must be close. Countries in the past have used supply of arms as a means of extending their sphere of influence. Whatever this country did,

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certain other countries would do the same in the future and to a much greater extent, since they had not to compete against private supply. In the end we submit that you would get a grouping of the world highly dangerous to peace, with powers that might be peace-breakers stretching their tentacles in all directions. Note, too, that in the case so often quoted, the war between Bolivia and Paraguay, this war might well be harder to put down under nationalisation than under controlled and licensed private manufacture. The producer-country which agreed to supply either belligerent would no doubt have made similar agreements, perhaps many, with other countries. It could not break faith with one without destroying the confidence of all. The supply of arms would have acquired almost the sanctity of a treaty. There would be strong pressure against deserting the importing country in its extremity.

Under the system of private manufacture such a war can be stopped more easily. It can be stopped to-day, if all producing countries agreed to prohibit the export of arms direct or indirect, to the belligerents. If it is objected that such agreement has proved impossible to obtain, and always would be impossible, the answer is that agreement would be equally necessary under nationalisation, and more difficult to get. If a country fails to do its duty by forbidding its nationals to export arms, it would hardly be more likely to act if it itself were the exporter. Moreover, as stated above, a supply of arms might be almost a matter of treaty right.

4. *Countries where all Production is Nationalised.*—There is one point to which we wish to draw attention because its importance seems to have passed unnoticed.

The assumption underlying the proposal for the nationalisation of arms manufacture is that trade in general is free. But there is at least one country where, even now, all production is in the hands of the government. Every factory therefore in that country would, under such a proposal, be a factory authorised to produce arms. But in other countries, our own included, where production and manufacture are still in private hands, only the government arsenals would be in the position in which every factory and shipyard would be in a country where all production is nationalised.

5. *Increase of State Factories.*—Coming to the second alternative mentioned in paragraph 3, compelling all countries who do not have state factories to start them, you would thereby actually increase the amount of arms made. States which do not now have factories would start them and it is difficult to see how this would help disarmament. State factories, perhaps a popular and lucrative employment, would be the hardest of all to abolish.

But there is a greater evil than that. Armament factories now do not make arms all the time. Possibly one-tenth of their output is arms, nine-tenths civil goods. But in this country at any rate a state factory would have to make arms and nothing else all the time. Public opinion would not allow an enterprise financed by government money to compete in building merchant ships or bridges or electrical plant or motor cars. Certain shipyards and certain factories would be set apart to make armaments and nothing else, and they would have to make more than private firms do now for this reason: all manufacturing countries have—we certainly have—an immense power of expansion in war time. We can convert our factories to war production because they have made arms in peace time. But expansion would be more difficult if all armaments had, for many years, been made in state factories and the art was lost in private factories. We suggest that

the result would be that a prudent War Office and Admiralty and Air Ministry would insist on bigger reserves of arms. This would not only cost more but could hardly tend to the peace of the world.

6. *Traffic in Arms.*—We advocate the American plan also for the control of traffic in arms. This brings up to date the earlier Convention of 17th June, 1925 (Command Paper 3448/1929); see Chap. III of the draft American articles. This is based on the principles of licence and publicity and prohibition of sale except to governments. No exports or imports could take place without a government licence, containing full particulars, which would be published. No sales would be allowed except to governments, or bodies authorised by them. Particulars would be given of all warships laid down and completed. Exports to territories under the sovereignty or tutelage of the exporter (e.g., the British Empire including mandated territories) are excluded.

7. *Solicitation.*—No doubt the public is deeply moved by the belief that armament makers persuade a country to arm and then go round and frighten its neighbours into arming also, and we do not disregard the evidence given before the Committee of the American Senate. But if nations were the only sellers, would they be more scrupulous than individuals? Some would, but whether all would is much more debatable. We have no evidence as to how far solicitation is used by armament firms in this country; but we suggest that nations arm not because they are solicited but because they are afraid. Solicitation admittedly may act on fear, but is not the primary cause of fear, and fear is the cause of armaments. Nations would arm, were there no solicitation whatever, until fear is removed. But putting solicitation at its most evil, and no one can feel easy about it, one way to meet it would be to add a clause to the American articles imposing the sanction of forfeiture of the licence to manufacture on proof of solicitation, which would be a heavy and we believe effective penalty. We may point out that the penalty of forfeiture of licence would not be applicable if governments were the only makers of arms.

8. *Disturbance of International Relations.*—It is said that solicitation by sellers of arms keeps the world in a state of permanent unrest. We do not presume to offer evidence on this head, for we have no first-hand knowledge, but we wish to make a comment. In Europe of to-day, where unrest is obvious, is this unrest the doing of Vickers or Krupps or Creusot or Skoda? Probably no one would say that their activities are the sole cause, and we find it difficult to believe that they are even a serious contributory cause. Surely the evils affecting Europe lie deeper than the activities of armament makers, however mischievous. But even if these are a contributory cause, it remains to be proved that nations if they were the only sellers would be less active in soliciting than are firms or companies.

9. *Summary of American Plans.*—All armament firms would be under direct government control (Arts. 2 and 3). No arms would be made except under licence (Art. 5). All licences, all orders received, and all arms made would be matter of public knowledge (Arts. 7 and 23). No export except to a government (Art. 10) and no export or import except under licence (Art. 8). All export and import licences would also be matter of public knowledge (Art. 23). All factories to be inspected by an international body (Art. 20 *et seq.*), the results of such inspection to be published (Art. 22).

No sanctions are attached to a breach of the convention, beyond publicity, that is, special international inspection and report (Arts. 27-29).

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10. *Weakness of Britain under Nationalisation.*—We do not prepare for war to the same extent as some countries. We rely on our power to expand. This is our traditional and commendable policy. This we should sacrifice if we adopted nationalisation. The fact that we have a large armament trade all over the world makes us strong for defence. Our potentialities are great and well known, and consequently we are less liable to attack.

11. *The Moral Issue.*—Possibly most people who object to private manufacture do so either because they think it bad that there should be capitalists and shareholders who profit by war, or because they consider it wrong to make money out of killing.

The first belief, the wish "to take the profit out of war" is partly a moral movement, but also practical, as it is believed that if war is profitable it will happen. This we think debatable; but it is obvious that the fewer the people who benefit by war the better for the world. That cannot be disputed. It is argued that so far as self-interest is a motive, nationalisation, by replacing private self-interest by corporate self-interest, might lessen its intensity. We doubt this; but even granting that it would, we consider that the evils of nationalisation greatly outweigh its advantages.

The second belief, that it is wrong to make money out of death, is widespread. We know it is held by people of high character, for whom we have the greatest respect, and we do not overlook the necessity of dealing with it. We venture, however, to make two observations. Assume all manufacture nationalised, some sales have to be made to non-producing countries, and if these are made at a profit, as they certainly would be, the selling country is profiting out of death. If private action is indefensible, corporate action is no less so; and yet sales must be made or else the unfortunate non-producing countries will be at the mercy of their producing neighbours. Nor would the world be better if Britain alone refused to supply, and left the trade to countries who might be regarded as less scrupulous. That is our first answer, but perhaps a stronger answer is this. Profit in arms may be wicked, but the problem before statesmanship is not one of general rectitude, but how to make the world more peaceable. Before nationalisation is adopted it must be proved that it means peace. We have shown why we think it fails on the practical issue. And for ourselves we cannot see that it even solves the moral difficulty.

421. *Chairman:* You have put your case very plainly, if I may say so. But there is one passage that I do not quite follow, and perhaps you will explain to me what exactly it means. In paragraph 3 you say: "Therefore the bond between producer and importer must be close"—then you go on to say:

"Countries in the past have used supply of arms as a means of extending their sphere of influence. Whatever this country did, certain other countries would do the same in the future and to a much greater extent, since they had not to compete against private supply."

I do not quite follow what you are driving at there.

Major Hills: The argument is that certain countries in Europe after the war have used their supply of arms to make political alliances—say France and Poland—and if they had held the sole supply in their hands and had no competition to meet from private sellers, would not that power, which I regard as a very questionable and dangerous power, operate to a greater extent?

422. *Chairman:* Then, in paragraph 4, you say:

"The assumption underlying the proposal for the nationalisation of arms manufacture is that trade in general is free. But there is at least one country where even now all production is in the hands of the government. Every factory therefore in that country would, under such a proposal, be a factory authorised to produce arms. But in other countries, our own included, where production and manufacture are still in private hands, only the government arsenals would be in the position in which every factory and shipyard would be in a country where all production is nationalised."

I do not see how you arrive at the statement that trade in general is free.

Major Hills: In this country, Sir, if all the making of arms is nationalised, certain factories would be armament factories, but the ordinary private factories all over the country would not be armament factories. In a country where all manufacture is governmental, every factory would be an armament factory, and that would put that country under an advantage, and would make inspection practically impossible. Take a big and widespread country—I think you know the country that we have in mind, Sir—with factories all over it, all government factories, they could make arms or anything else, and they might offer to open them for inspection, but it would take years to get round and inspect them, and they would have, on the practical side, a potentiality of manufacture which gave them the advantages of government and private manufacture in one, against another state which left the rest of its productive capacity free, and could only make arms in government factories.

423. *Chairman:* Now have you considered this question: assuming nationalisation to be adopted, if would follow from that, would it not, that there would be no export by private firms of arms manufactured by themselves; but under nationalisation, a government might employ private firms to manufacture for them, and in that case they would be government factories.

Major Hills: You would distinguish, Sir, between a nationalised factory and a factory employed by the government?

424. *Chairman:* Well, I was asking you whether there really would be any distinction.

Major Hills: I take it that you could not have a complete system of nationalisation unless the factories, whether they were national or agents of the government, were confined to the making of arms.

425. *Chairman:* But is that necessary for a complete system of nationalisation? Nobody could export arms from the country except the government. Does it cease to be a nationalised system because the government employs private firms to make, we will say, parts of armaments or entire guns or entire aeroplanes? Does it cease to be nationalised in the sense in which we are using nationalisation as opposed to private manufacture?

Major Hills: I understood that Lord Cecil applied nationalisation to start from the first process at which the raw material is differentiated for arms purposes compared with civil purposes. If the government gave that final process to Vickers, or Armstrong's, or John Brown, or the Coventry Iron Works, would not that be a system of licensing private manufacture, and not a system of nationalised manufacture?

426. *Chairman:* Well, that remains to be decided by somebody. Assuming again a system of nationalisation to be established, do you think there would be any danger of the private firms at present manufacturing in the country where nationalisation is established, removing their works to a country which is not nationalised, or entering into working agreements with a firm in a country which is not nationalised? Could that be prevented in any way?

Major Hills: I think that is very probable, Sir. I think the big firms that had got skilled men and

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[Continued.]

a history of armament-making behind them would start factories in some country where armaments were not nationalised; but may I respectfully suggest that the answer is an international treaty, whether it is for nationalisation or for the American plan—that it must extend over all the main producing countries if it is to be effective.

427. *Chairman*: How, under nationalisation, do you think that the manufacture of aeroplanes could be dealt with? We were told by one witness that there was no possible way except the state taking over the whole of the manufacture of aeroplanes. Have you considered the question?

Major Hills: I do not really think that the principle of confining national factories to the last process that differentiates the material from its civil purposes is very effective. I think you would find that except for the processes like the making of the steel, the differentiation starts very low down in the manufacture; but of course I have no technical knowledge whatever, and I believe that with regard to aeroplanes, certainly the differentiation between the civil and the military is increasing every year—and the actual difference is increasing every year—and it may approximate in time to the difference between a merchant ship and a battleship. I venture to think, though it is only my own personal opinion, that you would have to set apart certain factories for the exclusive manufacture of military aeroplanes. I think they are so different from civil machines.

428. *Chairman*: Captain Loder, would you like to say anything in addition to what Major Hills has said?

Captain Loder: No, thank you. I agree entirely with what Major Hills has answered, and the statements he has made.

429. *Dame Rachel Crowdy*: As you know, Major Hills, in Geneva I had a good deal to do with the drafting of the various opium conventions.

Major Hills: Yes, I know you had.

430. *Dame Rachel Crowdy*: I have been much struck with the likeness between the American draft convention and the International Convention of 1931 for the control of dangerous drugs. There is one great difference between them however, I can find nothing in the disarmament scheme which deals with limitation. There is inspection, of course, and there is publicity, as you say. There is no reference to limitation. There is a clause in the Opium Convention which limits manufacture to medical and scientific purposes.

Major Hills: Yes.

431. *Dame Rachel Crowdy*: I quite see that a clause of such a kind could not be applicable to armaments, but do you believe that a tightening up of regulation, and a strictly applied license system, as you suggest, is any good at all unless limitation of some kind goes with it?

Major Hills: No system is any good without limitation of arms, either nationalised or controlled private manufacture. It is the essential condition, and if I may add this, the American draft articles proceed on the basis of a disarmament convention.

432. *Dame Rachel Crowdy*: You, I gather, are in favour of private manufacture continuing, given strict control and an efficiently applied licensing system, rather than that a scheme of nationalisation should be adopted?

Major Hills: Yes.

433. *Dame Rachel Crowdy*: If you continue to have private manufacture on any lines, even licensed and controlled private manufacture, are not you still going to have all the disadvantages which go with business methods?

Major Hills: Yes.

434. *Dame Rachel Crowdy*: You are bound to go on having bribery; you are bound to go on having

touting for orders; you are bound to go on having combines with selling commissions?

Major Hills: Yes.

435. *Dame Rachel Crowdy*: How are you going to get past all that if you continue private manufacture? I should very much like to hear your development of that if you would be good enough to give it.

Major Hills: I quite see the evils that Dame Rachel is driving at, and I recognise them fully. I suggest that if you have complete publicity as to where the armaments go to, and you know, at any given moment, what arms each country is getting, the basis for solicitation and frightening another country into arming would disappear, or anyhow would be lessened; and again, if you had a disarmament convention, and no country could possess more than certain arms, and all those arms were known, solicitation could only take place up to the limit allowed in that convention; it would be a very different solicitation from what exists in an uncontrolled armed world. My third point is that I do not trust governments as much as some people do. I do not believe for one moment that our Government would go and solicit, but I could name some governments that I am pretty sure would go and solicit. I do not think you get very much more righteousness by calling it a government than you do by calling it private individuals, over whom you can keep a much stronger check. Lastly you can forfeit the licence of a man that solicits, and he has no say; it is gone; his trade is done away with, if he solicits. But take a government that solicits; we know that you cannot indict a nation; how do you punish that government? You cannot. You have lost control. A very big part of your control is gone; because, if the private firm breaks out, a government would be very slow to defend the iniquities of its private nationals, but if its own actions were challenged, it would refuse to plead, and you would get a very nasty position.

436. *Dame Rachel Crowdy*: I can think of a case at the moment on which I should like your comments, a case I came across myself. Suppose this system you suggest were in operation, and you believe solicitation can be stopped to a very great extent by governments, how would a case like this be dealt with: Three months ago, in Manchuria, I talked casually to a man in a hotel and asked him what his job was in Manchuria at the moment. He said: "Well, I have just come. I represent such-and-such a firm in the United States"—whose name I will not give because I have already given it to Senator Nye, and it is his business, not ours—he said: "I have just come from Afghanistan, where I have sold"—his exact words were—"where I have induced them to buy twelve tanks." Now, how are you going to follow up solicitation of that kind? The man is working from Manchuria and he has been doing his touting in Afghanistan, among the tribes. Now, how would you cope with that type of thing, which would probably not be done by a government, but which would be done by a private firm?

Major Hills: Yes, I quite accept that that is a common state of things. I suggest that that man's employers would have been less ready to send him out to solicit if they had known that their business was imperilled; and would it be quite impossible that that man should be the representative of some government, and that they were selling to the Japanese and to the Chinese?

437. *Dame Rachel Crowdy*: This actual man, you mean, or any other?

Sir Philip Gibbs: This actual man.

438. *Dame Rachel Crowdy*: This actual man was with one of the big private firms of the United States, and when I commented on this to some of the members of the Commission in Washington, I was told that that was very interesting, because there

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was a record of tractors having been manufactured and sent abroad; but there was no mention of tanks.

Sir Philip Gibbs: They were, I suppose, actually tanks?

439. *Dame Rachel Crowdy:* They were actually tanks according to this man, who told me merely because he was interested in a job he had pulled off.

Major Hills: We all want the same thing, and I quite see that if you can rely on nations to act more rightly than individuals on the solicitation side, there is a very strong case; but my experience of the world does not confirm that. I am not sure that you could. Just look at what is happening in Bolivia and Paraguay. There you have a certain country, who shall be nameless, breaking what was an agreement and still exporting arms.

Captain Loder: Might I intervene, Mr. Chairman, to elucidate that point?

440. *Chairman:* Yes, by all means.

Captain Loder: It has only just occurred to me that under nationalisation it would be a temptation to governments to keep their armament factories working at full time; that you might get, in an example of this kind, exactly the same kind of agent going to a country like Afghanistan on behalf of the government as you do on behalf of a private firm at the present time.

441. *Dame Rachel Crowdy:* Would not that be rather less likely because, after all, diplomatic relations in such circumstances might be endangered between governments? This would not enter into the question between private firms.

Major Hills: I wonder.

Captain Loder: I have doubts; but of course that must be a matter of opinion.

442. *Mr. Spender:* Would you not agree, Major Hills, that this business of solicitation under various forms has been a part of diplomacy for generations past?

Major Hills: The private sale of armaments?

443. *Mr. Spender:* Not the private sale. The point I want to get at is this. You suggest that it will be aggravated by nationalisation.

Major Hills: Yes.

444. *Mr. Spender:* I suggest that it has been a chronic source of difficulty for a great many years past. For instance, as we all know, governments are very anxious that certain other governments should accept loans from them, and it is a very frequent condition that the loans shall be spent on armaments in the country of the lender. That is true, is it not?

Major Hills: Yes. I think our record is rather better than that of the rest of the world. For instance, the Trade Facilities Act, which allows loans for the purpose of encouraging the export of British manufactures, excludes armaments. And I do not think that we use our diplomatic representatives, if at all, to the same extent as some countries do; but I speak only from general knowledge.

445. *Mr. Spender:* I am not suggesting it is practised by the British Government; I only suggest, as a general statement, that if you look at the diplomatic records of Europe before the War, this was one of the great weapons, the offer to another country, even the persuasion of another country, to accept a loan on condition that it spent it on armaments in the lending country.

Major Hills: Yes, I have heard that stated, but it is not a thing that is made public, usually, and I cannot say.

446. *Mr. Spender:* You will find it in German and Austrian documents. I think you will find a good deal of evidence of it. Then with regard to the arms supplied by one country being used against it, is not that a sort of perennial possibility? It is a gamble all the time. In the South African War the arms we supplied were used against us.

Major Hills: I cannot say. I think it is quite possible.

447. *Mr. Spender:* The Turks, for instance, in asking us to construct battleships for them, certainly had a case for saying that they were left in the lurch when we took the battleships on the eve of the War. I am only suggesting that these are not necessarily incidental to one policy or another, that they belong to nearly all policies.

Major Hills: Would not the position be different if the government themselves were the sellers? No doubt Armstrong's were making a battleship for the Turks when war broke out, and if the War had been postponed for the time that was required to complete that ship, the ship would have been on the other side, I quite agree; but in the case of governments agreeing to supply, would not they make a bargain with the country that the arms were not to be used against themselves or their allies, and would not that, in the end, produce a grouping of the world that would be very dangerous to peace?

448. *Mr. Spender:* Do you think it would be possible for any country to make such a bargain? I mean, it would be quite possible on paper, but do you think there could be any certain guarantee in the very uncertain politics of the world, as they have been, that the armaments supplied would not be used against the supplying power, or that that provision could be enforced?

Major Hills: No. I think it would take the form of political advantages, or a political alliance, in return for a supply of arms.

449. *Mr. Spender:* In fact, everybody would take the chance. They would hope, but they would take the chance. You would get the order for the supplies of armaments, and you would take the chance that the country you supplied would, if war broke out, be either your ally or on friendly terms with you. It is a gamble all the time, is it not? I mean, it is a chance, with governments or private firms, or whatever system there was; there would always be these chances that the arms supplied by one country, whether by government or by private firms, might be used against that country if it came to war. Is not that so?

Major Hills: I agree it is possible, but I think the country that entered into that sort of contract, the producing country, would make every effort to prevent its happening.

450. *Mr. Spender:* You said that everything depended on international agreements. Do you mean that nothing could be done by this country single-handed?

Major Hills: Single-handed? Well, Sir, I see great difficulty. The Convention of 1925 was submitted 10 years ago, and it comes into force if, I think, nine chief producing countries ratified it. We have always expressed our willingness to ratify if certain other countries ratified, and that has never been done, for the reason that if we ratify—and we restrict ourselves in that case—in that case it would simply mean that we opened a door which somebody else used, and unless the Commission think the thing ought to be done away with at all costs, which is a view I know is widely held, I think we should do more harm than good for peace. I do not think that we should increase the peace of the world if we, who do take some means to see that arms do not get into the wrong hands, were to say that we would nationalise all factories and control all export—if we alone did that, and other countries were less particular.

451. *Dame Rachel Crowdy:* Certainly in connection with the drug traffic we found that very strict supervision by governments, and very strong policies of control proposed by different national governments, was what led ultimately to international agreements.

Major Hills: Yes.

452. *Dame Rachel Crowdy:* Therefore, what one country does may bring about concerted action?

Major Hills: Yes, that is so; and we do possess a licensing system now. You cannot take a sporting rifle abroad without a licence for it.

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453. *Dame Rachel Crowdy*: It would depend on how strict that licence might be, and how strictly applied?

Major Hills: Yes.

454. *Professor Gutteridge*: If I understood you aright, what you are afraid of, when you talk about grouping, is this, is it not, that non-producing countries would tend to have a big brother who would supply them with arms as and when they required them?

Major Hills: Yes.

455. *Professor Gutteridge*: And that you might get the countries of Europe grouping in such a way as to make it very difficult to get collective security?

Major Hills: Yes; I think you damage the collective system.

456. *Professor Gutteridge*: Now I forget: are you representing the League of Nations Union, or are you here in your own individual capacity, you and Captain Loder?

Major Hills: Captain Loder and I are giving our own individual views. We have consulted one prominent member of the Executive as well, but except for that, we have consulted nobody.

457. *Professor Gutteridge*: Anyhow, you know there are two pamphlets, published by the League of Nations Union, which are known to us as No. 347 and No. 359?

Major Hills: Yes, I know them.

458. *Professor Gutteridge*: One of them contains an outline of a scheme; I think Colonel Carnegie told us that he had originated it. Are you familiar with that scheme?

Major Hills: Yes.

459. *Professor Gutteridge*: Would you give me your views on that? Do you support that scheme?

Major Hills: He has produced more than one scheme—a scheme that I have in mind was one supporting internationalisation of armament factories, that they were not to be considered as inside a state, but all were to be grouped into one.

460. *Professor Gutteridge*: That is not the one I mean—the one that provides for selling boards.

Major Hills: And the other was a national board.

461. *Professor Gutteridge*: That is the one.

Major Hills: A national board which should receive the orders and allot them to the different factories. Well, I think that is extremely difficult. You would get then, I suppose, competition between the different national boards. Each board would naturally try to get trade for its country, and I am not sure that you would get anything better than you have now.

462. *Professor Gutteridge*: You think we would still have touting.

Major Hills: I think some countries would still solicit.

463. *Professor Gutteridge*: You do not think there is any way of getting rid of the difficulties which arise from solicitation by having a national selling agency from which all armaments had to be sold? Have you applied your mind to that problem?

Major Hills: Yes. I have considered this problem for the last fourteen years, and we have gone round and round and round it, and we have always come back to two ways—either nationalisation or control of manufacture.

464. *Professor Gutteridge*: You think there is no intermediate?

Major Hills: I do not think you get any advantages by any intermediate.

465. *Sir Philip Gibbs*: I imagine that when you advocate the private manufacture of arms, you associate that with a very rigid licensing system.

Major Hills: Yes.

466. *Sir Philip Gibbs*: That is to say that you are broadly in favour of the American proposal for inspection.

Major Hills: Entirely.

467. *Sir Philip Gibbs*: And licensing.

Major Hills: Yes.

468. *Sir Philip Gibbs*: Now, if there were an international agreement on that point, I imagine that the licensing system would be quite severe—that is to say, that it would check the touting for supplies of arms from private manufacturers to other countries, and it would tighten up the general supply of arms to the world. Do you agree with that?

Major Hills: Yes.

469. *Sir Philip Gibbs*: Now, if that happened, would it not have the effect of so restricting the output of the private firms that it would really amount to reducing them to the position of manufacturers for their own governments?

Major Hills: Well, I wish I could think the world would be so peaceful.

470. *Sir Philip Gibbs*: You do not think an international agreement would insist upon that reduction, and the prevention of the free traffic in arms?

Major Hills: Well, may I say that those firms that were licensed would go on with their civil business just the same as before, but their armaments business would depend on the amount that the world was armed?

471. *Sir Philip Gibbs*: Yes; but would not the international agreement restrict that demand?

Major Hills: You mean a disarmament convention?

472. *Sir Philip Gibbs*: I am talking purely of this international agreement for the prevention of the abuses in the traffic in arms, not of disarmament.

Major Hills: I think it would. I think publicity alone would put down a great many of the evils of the forced sale of arms.

473. *Sir Philip Gibbs*: Do you think that private manufacturers would be able to exist under such a system?

Major Hills: I think it would mean that Vickers, and the other armament factories, would incline more and more to peace products, and that a smaller proportion of their business would be arms.

474. *Sir Philip Gibbs*: And you would be in favour of that, of course?

Major Hills: Oh, yes.

475. *Sir Philip Gibbs*: May I suggest to you that probably, without desiring it, in your attack upon nationalisation, you tend throughout this statement which you have given us, to minimise the abuses of the private manufacture of arms?

Major Hills: It is not intentional.

476. *Sir Philip Gibbs*: I thought it was not, but as a matter of fact in many of your phrases you suggest that the public opinion which is so hostile to the private manufacture of arms has been misinformed.

Major Hills: No, I do not think that for one minute. All I do venture to think is that the peace question is a different thing from the moral question. No, I do not in the least think that. I entirely respect the man who says: The thing is evil; do away with it.

477. *Sir Philip Gibbs*: Yes, but in many of your phrases you rather suggest that these evils are really not so great as people imagine, and that you personally do not believe in them.

Major Hills: Oh, I know they exist; I know these evils exist, and I want to put them down.

478. *Sir Philip Gibbs*: I think perhaps it is because, in disagreeing with nationalisation, you rather tend to stress that aspect.

Major Hills: I accept the correction, Sir.

479. *Sir Philip Gibbs*: There are one or two phrases I should like to question you about. For instance, there is one towards the end of your statement, in which you say: "The fact that we have a large armament trade all over the world makes us strong for defence." Now what I would like to put to you

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is this. Does not it also make other countries strong for offence?

Major Hills: Yes.

480. Sir Philip Gibbs: You agree with that?

Major Hills: Yes. May I just add one word. I do not believe in isolation. I do not believe that being strong for defence is enough.

481. Sir Philip Gibbs: No; but the point of my question was this. You say: "The fact that we have a great armament trade all over the world makes us strong for defence," but my point really is this—it is not a question of isolation—that we are selling to all the other countries in the world who may be our potential enemies. Do you agree with that possibility?

Major Hills: Well, we have an immensely skilled and expandable industry.

482. Sir Philip Gibbs: You call it a trade, you know.

Major Hills: And if the crisis of war came, we should find that the fact that we had sold all over the world, and perhaps armed potential enemies, was counterbalanced by the fact that we had this enormous and very valuable power of expansion.

(The Witnesses withdrew.)

Mr. WILLIAM ARNOLD-FORSTER, on behalf of the National Peace Council and associated Organisations, called and examined.

487. Chairman: Mr. Arnold-Forster, I think that you, on behalf of a very large number of organisations, have presented a full statement* to us, and in addition you have supplied us with a statement which is rather more a statement of your own; that is so, is it not?

Mr. Arnold-Forster: May I explain, Sir. The memorial submitted to you has been formally endorsed by the twenty-six organisations whose names are subscribed to it. The statement I submit to you is one based scrupulously on the memorial; it represents my views, but I believe it represents also exactly the views of all those organisations, and my statement will purport to represent their view, substantially, with the reserve that I shall make in submitting it.

488. Chairman: Do you think it would be convenient that you should adopt the course that other witnesses have adopted, and read your statement?

Mr. Arnold-Forster: I should like to do so.

489. Chairman: Very well. Have you any special connection with armaments or armament manufacture, or are you connected with the Association whose memorandum we have been supplied with?

Mr. Arnold-Forster: I am adviser to the National Peace Council, which federates many Peace Organisations in this country; also a member of the Executive of the League of Nations Union. I was during the war a naval officer in the service of the Admiralty, and had a position on the Admiralty's behalf on the Contraband Committee at the Foreign Office, and in other Departments afterwards, and also at the Peace Conference in 1919. I have been secretary to Lord Cecil, and have been in government service as secretary to Lord Cecil and Lord Parmoor, in that capacity attending at Geneva in 1929 and 1930, and I have had opportunities of seeing a good deal of the Disarmament Conference there as an observer for the peace movement here.

490. Chairman: Thank you. Then perhaps now you would like to take your statement, would you?

Mr. Arnold-Forster: Thank you.

The Commission has already received, at its previous session, some impressive indications of the strength and extent of the public demand for effective action to deal with the evils of the arms trade as now conducted. To-day I bring you further evidence of this demand. The memorial transmitted to you from the National Peace Council, and which will be the basis of my statement, has the endorsement of no less than twenty-six organisations, some of which are nation wide in scope and

483. Sir Philip Gibbs: I think that rather suggests that we are selling arms—you suggest it in this statement—to other countries, but that we reserve to ourselves a possible superiority. Do you think that is actually the fact?

Major Hills: Well, I should regard that country as strong for war which had a big arms industry. I am talking entirely of strength for war, now, that although even some of those arms that it had made in the past did get into the hands of the enemies, I should regard that country as stronger to go through a war than the country which had not got that manufacturing capacity.

484. Sir Philip Gibbs: That power of expansion?

Major Hills: Yes.

485. Sir Philip Gibbs: And you do not think that would be possible under a nationalisation system—to maintain a potential superiority in production?

Major Hills: Yes, that is quite true. Yes, I accept that.

486. Chairman: I think that is all. Thank you, Sirs. We are much obliged to you for coming.

have a very large membership indeed. Amongst these organisations are:—

The Co-operative Union,
National Union of Teachers,
Union of Post Office Workers,
National Council of Women.

Spokesmen from these four bodies are with me to-day; and I submit the request that the Commission will be good enough to call upon these spokesmen to supplement my statement in due course.

The other organisations include the National Liberal Federation and the Women's National Liberal Federation. Mr. Ramsay Muir, President of the National Liberal Federation, had hoped to be present, but has written me a letter in which he expresses his regret that neither he nor any of the other officers of the National Liberal Federation can attend as they will be engaged at the annual conference of the Liberal Party. He adds:

"The National Liberal Federation, speaking on behalf of organised Liberalism in all parts of England and Wales, is gravely concerned at the evils arising out of the present system of the private manufacture of and trading in arms. It welcomes the inquiry which is now proceeding and is glad to be associated with the National Peace Council in support of the Memorandum which has been submitted to the Commission, and which includes our views. Had it not been that I have to preside at the Party Conference I should certainly have accompanied you when you attend before the Royal Commission."

The other organisations are the Baptist Union, the Women's Co-operative Guild; also the

Auxiliary Movement,
Baptist Minister's Pacifist Fellowship,
Congregational Christian Pacifist Crusade,
Friends Peace Committee,
Church of Scotland Ministers' Peace Society,
International Friendship League,
National Co-operative Mens' Guild,
National Council for Equal Citizenship,
National Guild of Co-operators,
National League of Young Liberals,
National Peace Council,
National Union of Women Teachers,
Northern Friends Peace Board,
Society for Research in Education,
Teachers' Anti-War Movement,
Unitarian and Free Christian Peace Fellowship,
Women's International League,
Women's Peace Crusade.

* See Appendix.

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Mr. WILLIAM ARNOLD-FORSTER.

[Continued.]

In addition, I have ascertained that the policy set out in the memorial we have submitted embodies the general policy advocated by the British Trades Union and Labour Movement.

I do not claim, of course, that all the members of all these organisations would endorse every word that I shall say in speaking to the memorial; but I do claim that the broad policy and point of view which I shall outline has the full support of many millions of people in this country. So I have a formidable responsibility to discharge.

I shall venture to base my statement upon two assumptions. Firstly, I assume that the Commission, in making its report, will wish to determine what are the "grave objections" to which the manufacture of armaments by private enterprise is said in the Covenant to be open, and what are the objections to the traffic in arms in its present, almost wholly unregulated, condition. So I shall try, in the first part of my statement, to indicate what I believe to be the main grounds for objection to the present system, the main justifications for public anxiety. In doing so, I shall of course confine myself as far as possible to illustrations which concern British firms and which have not been cited before the Commission hitherto. I shall also be at pains to avoid raising merely personal issues, since I presume that what is under examination here is the entire system in which certain kinds of evil are likely to occur, rather than individual scandals.

Secondly, I shall venture to assume, from the terms of reference, that what the Commission will be most concerned with is the formulation of concrete proposals for preventing such "evil effects" as have been shown, or will be found, to exist. So I shall address myself, so far as I can as a layman, principally to questions of constructive policy. My evidence will be directed to the question, what measures might fairly be commended to the country as being at least sufficiently substantial first steps in the right direction? What measures might the Government hope to make practicable, granted courageous leadership?

PART I.

EVILS OF PRIVATE MANUFACTURE AND OF THE UNREGULATED ARMS TRAFFIC.

Firstly, then, I turn to the evils of the present system of manufacture of armaments for private profit, and of the almost wholly unregulated traffic in armaments.

My main thesis, in a nutshell, is simply this:—That the system of manufacture and sale of armaments for private profit, backed as it is by powerful financial interests, served by a widespread selling organisation, often assisted by the governments of the selling countries, and conducted largely in secret, *must* tend to affect public policy in ways prejudicial to peace, international confidence, and general disarmament.

I submit that, even if no specific evidence were available to prove this—and, as I shall show, much evidence is available—it would still be reasonable to deduce that conclusion from the bare facts about the arms industry in its present circumstances.

I will select three outstanding items from the many-sided case against the present system, and will, if you permit, illustrate each of them with a few examples. I must point out, however, that in choosing these examples, I am necessarily under some handicaps at the moment. The competitive arms trade is conducted in conditions which offer every inducement and opportunity for secrecy, and usually it is only some accident, such as a disclosure by a disgruntled Mr. Mulliner or Mr. Shearer, which flashes an occasional light into the darkness. So I cannot hope to give more than a scrappy indication of the complete picture.

Furthermore, I am speaking at the beginning of the Commission's sessions, at a time when there has never been in this country an inquiry into this trade such as the United States have undertaken. No steps have yet been taken here to compel the disclosure of relevant documents by British firms. All the organisations on whose behalf I speak join in urging that the Commission will insist on taking testimony on oath, whenever this may be called for, and will require the production of documents that may be necessary to throw light on the "evil effects" alleged in the Covenant. I hope that if and when adequate publicity is given to the operations of British firms in this trade, it will be found that the British arms trade, whose export business is the largest in the world, has a cleaner sheet than that of its competitors and collaborators in other countries. But I do not know: none of us knows. At present therefore it is inevitable that most of the illustrations available concern non-British firms.

1. The first and most important of my three points is this.

The firms which make and sell armaments for private profit must desire conditions in which there is an effective demand for their products; and this motive force, operating under present conditions, must have the effect of promoting an expansion of sales of armaments and of impeding agreement upon that all-round reduction of armaments which the world urgently needs.

Do the firms in this country whose business is largely concerned with armament production desire conditions in which there is a demand for their products? Of course they do, just like the producers of beer and soap. They do not find it prudent to advertise the fact on the hoardings: they do not invite us with picture posters to "say it with tanks"; "it's nicer with mustard gas." But of course they desire the business. Of course they desire conditions in which there is a demand for what they have to sell.

I daresay that spokesmen of some of the firms in question will presently assure the Commission that they do not desire war. Let us accept their assurance at once, without reserve (though we should be realistic enough to take note of the colossal profits made by certain firms manufacturing armaments, especially during the war period, cf., for instance, Dr. Addison's evidence as to the inflated prices charged by British armament firms before their quotations were challenged by the Ministry of Munitions; also Exhibits 528, 529 and 530 in the American Inquiry). But that is not the real point at issue.

I daresay that all the directors and managers of these firms, when reading their morning newspapers at breakfast, want to see the nations settling down nicely together, demilitarising their frontiers on the Canadian-American model, beating their swords into ploughshares, or learning, like Krupp, to use their gun factories for making stainless steel false teeth. But can it be doubted that these same individuals, when they go to the office after breakfast in their capacity as managers of great businesses, have to switch over their attention to the job of expanding that business so as to produce dividends for their shareholders and employment for their staff and plant.

Lord Cecil quoted to you the reference by Sir Herbert Lawrence, chairman of Vickers, to those reductions of armaments which, when he spoke in 1932, "have affected adversely your Company's trading results." Can it be doubted that, whilst in his capacity as an ordinary citizen Sir Herbert may desire the success of the British Government's efforts to achieve a reduction of armaments all round, in his capacity as chairman of a firm so largely engaged in making armaments he must deplore such reductions?

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Naturally, the managing director of Vickers, Sir Charles Craven, was anxious, according to a letter disclosed in the American Inquiry (Exhibit No. 22) lest "Geneva or some other fancy convention" should decide that large submarines have to be abolished; his firm was making such submarines, whilst the British Government was advocating their general abolition. Sir Charles is shown, according to the same letter, as writing in October, 1932:—"The political situation in Spain seems very confused, but there seems a considerable prospect of our friends receiving orders for small craft on the pretext that they are purely defensive." He was referring to the Spanish Naval Construction Company, of which he is, I understand, deputy-chairman. The Spanish company is closely linked with Vickers and pays royalties to it and to the Electric Boat Co. in America (Exhibit 134 in U.S. Inquiry). Naturally Sir Charles would like to see the Spanish company building these ships.

Sir Robert Hadfield, speaking at the annual meeting of Hadfields, Ltd., in 1934, described the firm's production of a new armour-piercing shell which had been patented in eight countries and which possessed extraordinary properties of penetration: according to the report of his speech in the "New York Times" (1st April, 1934), Sir Robert added with refreshing candour: "We are indeed devoutly thankful for present mercies, but may I add that for what we are about to receive may the Lord make us truly thankful. And this I say in no irreverent spirit." Mr. Fairey, chairman of Fairey Aviation Co., in an interview in the "Daily Mail" on 5th January, 1934, emphasised the necessity, in his view, of a large increase of the Air Force, including an increase of the aircraft in reserve by 400 per cent. A few days earlier he had said at the annual meeting of his company that the Air Force could not well be maintained at its present size and that "if it is decided to complete or enlarge the original programme, the result should reflect on this company's prospects."

The American Inquiry has, I need hardly say, afforded scores of indications not less candid than these. Let me cite two examples not yet mentioned here. Exhibit 714 shows the Federal Laboratories of Pittsburgh circularising their agents, in July, 1934, as to the sales of tear gas and war material. The circular states that the company were contractors to 17 foreign governments for military equipment, such as airplane bombs, smoke screens, chemical containers, etc.; and it says: "With conditions of unrest as they are to-day throughout the world, you have a real opportunity before you if you will only get back of this thing and push the Federal programme." Of course the company must welcome such unrest. In Exhibit 732, the agent of this same firm, the candid Mr. Jonas, writes: "I am busy as hell on the Brazilian revolution, and Paraguay and Bolivian situation, and I am bidding on a great many things. If I am successful in closing half of all the business I am working on, I will be able to pay off my debts and have a few dollars left over. This is all I want." Or, again (from Exhibit 740), "Have supplied all the bombs and a lot of other military equipment to most of the countries fighting in South America, and if they keep it up much longer I will have no cause to complain." This is that Mr. Jonas who gave the classic definition of the business in which he was engaged: "We certainly are in one hell of a business, when a fellow has to wish for trouble so as to make a living."

But I must not pile up quotations. Is it not fair to infer, even if no such avowals as these happened to be available, that the industry and its agents must desire an expansion of their business?

We must not reassure ourselves with a comfortable pretence that these business firms simply *desire* business to come their way, but wait passively for its coming. They are not merely scrambling for shares in a cake of predetermined size, but are working to enlarge the cake. Their agents are always at work, in many countries, soliciting business on a commission basis: and as I shall show later, the "commission" system in this trade apparently extends far beyond the normal limits of commercial practice.

Let me cite a few outstanding examples of the active steps taken by armament firms to expand the demand for their products.

I make no apology for beginning with one pre-war case which Lord Cecil mentioned, but did not otherwise recall. I refer to the Mulliner case, because it was a significant outcome of that system which still continues, and because we can now, as we look back into history, trace to some extent the actual consequences of that armament expansion which Mr. Mulliner helped to bring about. This is, I believe, a fair summary of the main facts.

In 1906 and the following years this Mr. Mulliner, who was managing director of the Coventry Ordnance Co., informed the Admiralty and the Cabinet of alleged preparations for enormously accelerating Germany's Dreadnought building programme. Mr. Mulliner published the facts in the *Times* on 3rd January, 1910, being aggrieved that a sufficient proportion of the consequent expansion of the British naval programme had not been allotted to his firm. Four more British battleships were ordered in 1908 as a result of the scare for which he had been primarily responsible. Do not suppose that that incident is irrelevant to our present problem. For note the sequel. Mr. Churchill proposed a naval holiday to Germany; and he afterwards declared (*"Times"*, 15th November, 1933) that "I laboured for peace before the war, and if the naval holiday I advised had been accepted by Germany, the course of history might have been different." The Germans, however, rejected that proposed naval holiday, upon the advice of Admiral von Tirpitz, who urged that the proposal was only another dishonest British manoeuvre like "the Mulliner scare." Tirpitz thus succeeded in getting through his supplementary naval bill of 1912, although the Chancellor, Bethmann-Hollweg, feared that this bill "would lead to war with England." The attempt to reach an Anglo-German understanding was thus wrecked: as Lord Haldane wrote, in his book "Before the War" (1920), "Discussion about the terms of a formula became rather futile and we had only one course left open to us: to respond by quietly increasing our navy and concentrating its strength in northern seas. This was done with great energy by Mr. Churchill, the result being that, as the result of the administration of the Fleet by Mr. McKenna and himself, the estimates were raised by over 20 millions to 51 millions." Was Mr. Mulliner correct in his allegations? Let Mr. Churchill answer the question (I quote from his book, "The World Crisis," page 37): "The gloomy Admiralty anticipations were in no respect fulfilled in the year 1912. The British margin was found to be ample in that year. There were no secret German dreadnoughts, nor had Admiral von Tirpitz made any unproved statement in respect of major construction!"

I do not suggest, of course, that Mr. Mulliner was the main cause of Anglo-German naval rivalry. That would be a fantastic exaggeration. But I do suggest that the sequence of events which followed upon that advice given by an interested party has a lesson for us now. The armament firms got the business they wanted: others paid the price.

Lord Cecil has alluded to the Shearer case in 1927-1928. So I will only add, as a supplement, that the three greatest warship building firms in

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the United States admitted in court to having paid Mr. Shearer at the rate of over \$5,000 a month for having acted as their observer at the three-power naval conference of 1927; and Mr. Shearer claimed in court a further \$50,000 as the balance due to him for his services in helping to prevent the success of that disarmament conference and in helping to prevent the adhesion of the United States to the World Court. Is that not a sufficient illustration of the truth of what a famous ambassador, Lord Rennell of Rodd, has written about this business? "The propaganda of confidence is uphill work; but the propaganda of apprehension is easy and dangerous." Lord Cecil has already alluded to the control of certain great newspapers in France on behalf of French heavy industry and the armament ring; and he referred to the Seletzki case in Roumania in 1930, in which the Skoda Company was shown as having been involved in bribery on a colossal scale to secure orders for armaments from the Roumanian Government and in which precise testimony was given by M. Goga, a former minister, as to the panic about an imminent invasion by Russian troops into Bessarabia, which appears to have been engineered in order to facilitate the placing of a great order for armaments with Skoda.

Finally, let me refer to a few relevant items brought out in the American Inquiry. Exhibit 124 is a letter, purporting to be from Sir Charles Craven of Vickers to the Electric Boat Co., dated 24th September, 1928. It begins "I am trying to ginger up the Chileans to take three more boats, and want to ask if you will accept the same royalty as you did last time. You will remember this was £10,000 per boat." The Inquiry shows the Electric Boat Co. supplying warships to Peru, and passing on orders for Chilean warships to Vickers. The one order would of course have the effect of stimulating the other, for the two countries, Chile and Peru, were at that time in a state of very strained relations. And the two companies profited alike by such business; the arrangement was that the British firm should pay a commission to the American in respect of the orders thus passed on, in addition to the ordinary commission. All these sales of warships in South America tended of course to promote other sales. Shortly after England, and this stimulated the armament programme of other South American powers. The situation was thus described, justly as I think, by Senator Bone, in the American Inquiry (page 141): "Will they ever be able to get" (power in South America) "in balance, with all of these commissions going down there and with every private munitions outfit in the world trying to unbalance it just as rapidly as possible? How in the world are we ever going to have any sort of international comity and peace with not only private munitions concerns, but the governments of the world, the naval powers that ought to have more sense than to do a thing like that, going down there urging these countries in South America to each outrun the other in this race to be in a commanding position."

Other items which, I suggest, may deserve the attention of the Commission are the indications concerning sales by Imperial Chemical Industries of war material not only to the Nanking Government in China, but also to the Chinese authorities "in certain provinces which are not in sympathy with the Nanking Government" (pages 1346-7,

(Adjourned for a short time.)

On resuming.

Mr. Arnold-Forster: I have referred to the "commission" system current in the armament trade and to some of the anxieties lest armament firms should exert improper influence, directly or indirectly, upon the governments whose orders they so largely depend upon. May I point out, further,

1148, 1350, 1158). I refer also to the letter from Captain John Ball of the Soley Armament Company to the American Armament Corporation, 24th March, 1934 (pages 680-1, 631-2) in regard to the pushing of business with China.

But I must not weary the Commission with further illustrations. I submit that it is quite plain, even from the few illustrations I have given, that those who are making and selling armaments for private profit not only desire to expand, but do in fact find means of expanding, the demand for their products.

2. I come now to the second of my three points about the present system of arms trading for private profit. Conducted as it is largely in secret, in the world of power politics, the trade must tend to the infection of public life with corruption and with undue influence, or at the least towards a dangerous confusion of interested with disinterested motives.

The proceedings of the American Inquiry are filled with evidence and precise allegations about the abuses of the commission system which is customary in the salesmanship of the armaments trade abroad. It is evident from these documents that the "commissions" go far beyond such commissions as are customary in commercial agency work: they include, it seems, payments on a large scale to intermediaries inside and outside the service of the governments which are being induced to purchase armaments. British firms are alleged to be involved in this business abroad. It would, I suggest, be desirable that the Commission should enquire as to the extent to which the system of "greasing" officials—corruption direct and indirect—forms part of the business methods of British firms engaged in this trade at home and abroad.

Indications of the extent of the commission system in the armaments trade in general will be found, for instance, in Exhibits 39, 286, 287, 309, 313, 322, 323, 333. As regards British firms, I refer to the correspondence between Captain John Ball of the Soley Armament Co., who is a large seller of war stores taken over from the War Office (Exhibit 258, etc.). I draw attention to the allegations in Exhibits 286, 287, as to graft on a large scale in connection with the sale of aircraft by the Fairey Aviation Co. to Peru; and also to the letters, now well known, in which Sir Charles Craven, of Vickers, refers to his relations with the Director of Contracts at the Admiralty, and with the Director of Dockyards, Mr. Percy Addison. It is not for me to assert that these documents show improper influence or even an undesirable relationship between the firms supplying armaments to the Government for profit and the official servants of that Government. But I do submit that there is here a clear case for searching and public inquiry.

But in expressing the hope that the Commission will make such an inquiry, I wish to emphasise again that, in the view of those for whom I speak, the main issue is not whether British competitors resort to discreditable methods in a business in which such methods are common; the main issue is not even the question whether the present system has actually resulted in this or that case of bribery, or undue influence upon public servants; the main question is whether the armament trade can be suffered, without prejudice to the public interest, to exploit its opportunities for profiting from the world's fears.

how difficult it is under the present system to disentangle the interested from the disinterested motives. At present, a newspaper company, a newspaper proprietor, or a writer for the press, a member of Parliament and even a member of the Government, can buy himself shares in firms whose profits depend largely upon orders for armaments

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from the British and other governments. In pointing out this feature of the present system, I emphasise that I do so without the intention of casting any aspersions upon any individual who may be in a position to influence public policy whilst deriving profit from the sale of armaments. But I do maintain that, so long as such holdings can be owned by ministers of the Crown and members of Parliament, the advocacy in Parliament of an active policy of general reduction of armaments must be to some extent in danger of being tempered by consideration of the private interests involved. I submit also that it cannot be healthy for the repute of a government if it is known that Cabinet Ministers may be in a position to benefit personally, however slightly, from the breakdown of disarmament negotiations and from the placing of orders with armament firms by their colleagues who speak for the fighting services. It cannot, for instance, be good for Anglo-American relations that Mr. Selden, correspondent of the "New York Times," should be able, apparently without inaccuracy, to report to his paper in March of last year ("New York Times," 1st April, 1934), that "Sir Philip Cunliffe-Lister, Minister of Colonies, and Sir John Gilmour, Minister of Home Affairs, were referred to at the meeting" (he was referring to Vickers annual meeting) "as Vickers' shareholders. Neither was present however. Like the other members of the Government, both these Ministers have been busy this week in Cabinet sessions, attempting to solve the disarmament deadlock before the Easter vacation." I should add that, according to the returns in Somerset House, the Home Secretary is still shown, so lately as 16th April, 1935, as holding 3,066 ordinary shares in Vickers. I hasten to add that the holding by the Secretary of State for the Colonies is of merely nominal size—twenty-five shares only. It may easily happen, no doubt, that busy ministers may have overlooked their holdings of this character; it may even be that the holdings are only nominally registered in their names: in any case, I do not believe for a moment that the policy of Ministers has been affected in any degree by the fact of their holding such shares. But I do venture to suggest that there are objections to a system in which two interests, the one public and the other private, may be so closely intertwined.

Let me give one other example. Between October, 1933 and the early months of 1934, the "Daily Mail," followed by the "Daily Mirror," was conducting a campaign in favour of a large increase of the British Air Force. Between 2nd October, 1933, and 31st March, 1934, the market prices of the shares of the six principal companies making aircraft had appreciated on an average by 70 per cent. (I should add that of course some other shares appreciated at the same time). As I have already mentioned, Mr. Fairey, chairman of Fairey Aviation Co., supported this campaign in an interview in the "Daily Mail" on 5th January, 1934. The returns at Somerset House, dated 12th January, 1934, show that at that time "Daily Mirror Newspapers, Ltd." held 4,000 shares in Fairey Aviation Co. Ltd., I do not believe for a moment that the proprietors, or writers for, the "Daily Mirror" or any of its associated newspapers, would support a policy of expansion of the British Air Force which they would not have supported if it had not been for the holding of a few thousand shares in an aircraft-making company. I take it for granted that the newspaper, in advocating a policy of armament expansion, was thinking solely of the national security as conceived by it; and I fully recognise of course that the financial interest involved in this instance was a trifling one in relation to the financial resources of the concern. But I do submit that there must be some risk that if newspaper concerns can hold shares in armament concerns, the one interest may to some extent infect the presentation of the other issue.

3. That brings me to my third and last point. The present system lends itself to the formation of rings, national and international, between the armament firms; and this must involve the danger that these firms will play into each other's hands in stimulating the demand for orders and in forcing up prices against the taxpayer.

I believe that no part of this Commission's inquiry will be of more concern to the general public than its investigation of this subject, especially as regards what has been called "the Secret International." The American Inquiry has served to disclose many relevant facts hitherto kept secret; and already it is possible to form a fairly adequate idea of the astounding extent of the ramifications of this business, and the way in which armament makers in one country assist and profit from the work of armament makers in another country. I shall not attempt to draw this picture here; for I understand that a later witness will be dealing with this intricate subject far more adequately than I can possibly do. But I say with confidence that the Commission and the country will be impressed and disturbed when these facts are properly set out: impressed by the enormous power of the vested interests involved, and disturbed by the manifest dangers of the situation in which society is so much at the mercy of an organisation so largely interested in the sale of armaments for profit. The public is not mistaken in being specially anxious about this aspect of the subject. For the kind of association I speak of affects the public interest much more closely and dangerously than any ordinary commercial agreement for the repartitioning of markets, or for the exchange of material and technical resources. The armament industry is unique in this vital respect; a trader in one country stands to profit, in this business, rather than to lose, from an increase in the business of his opposite number in another country, if that country's relations with his own country are not unassailably based upon mutual confidence. Great armament firms, such as Schneider Creusot, Skoda and Vickers Armstrong, are in many respects colleagues in the supply of killing power to the world rather than rivals; and great manufacturers of chemicals, explosives and poison gas, such as I.C.I. here, Du Pont's in America and the I.G. in Germany, are in much the same position.

As regards those agreements which cut across national frontiers, I submit that inquiry is desirable as to the nature and consequences of the agreements between Vickers and the Electric Boat Company, and between I.C.I. and Du Pont, concerning which texts and particulars were published in the American Inquiry. Two points in particular about these agreements appear to merit inquiry, in relation to this Commission's terms of reference.

(a) Messrs. Vickers have, it is now disclosed, been paying large sums derived from the British taxpayer to the Electric Boat Company in the United States for use of the American Company's patents, etc. The sums paid averaged £28,000 per boat, according to a letter from the President of the Electric Boat Company, dated 20th April 1925 (Exhibit 10); and the royalties received by the American company from Vickers and their associated companies in other countries is given in some detail in Exhibit 9, showing that hundreds of thousands of pounds derived from the British taxpayer were paid to the American company on this account.

My question is whether the agreement under which these payments were made was fully disclosed at the time to the British Admiralty, which was Vickers' principal client. If not, what is the explanation of the letter from Sir Charles Craven, dated 30th July, 1932 (Exhibit 21), about the royalties due to the American company? The

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American company, according to this letter, telegraphed in code to Sir Charles Craven saying that it would accept a reduced royalty in respect of certain warships named. Sir Charles replied, quoting his decode of the telegram and adding "First, may I suggest that even in code it is better not to mention any names of ships as I am rather afraid that such telegrams might get into the hands of our clients, and it would be awkward if they ask me about our agreement with you. I am sure you will appreciate what I mean." It appears from a further letter (Exhibit 23) that the warships in question were for the British Admiralty. Does the correspondence mean that Sir Charles Craven's firm, whilst tendering for Admiralty contracts, was afraid that the Admiralty might find out about its agreements with the American company?

(b) My second question concerns the possible leakage of information which the Admiralty would wish to keep secret. In Exhibit 23, Sir Charles Craven is shown as writing to the American firm about an Admiralty order for a warship which the Admiralty would have a right to withdraw "if Geneva or any other troublesome organisation upsets the large submarine. In view of this, I am not saying anything publicly about the *Clyde*, and I would suggest that it would be wise that Spear" (of the Electric Boat Company) "should not let the information get into the hands of your Navy Department until after I can tell you that we really have a proper contract." Does this mean that Sir Charles was passing on to his American colleagues advance information which the Admiralty would not like the Navy Department of the United States to receive at that time?

Here is another illustration of the same point. In Exhibit 126, Sir Charles Craven is shown as writing, on 31st March, 1928, about a contract for a foreign power (apparently Chile): "The whole thing has been most secret, and as Dawson" (Sir Trevor Dawson of Vickers) "negotiated the final contracts with the Chief of the Commission in London, I had to accept his ruling, that I was not even to mention the matter to you in writing, hence the message by Roberts" (i.e., Vickers' agent in the United States and a member of the board of directors of the Electric Boat Company). "Even to-day" (Sir Charles' letter continues) "we are bound to secrecy, so will you please promise me not to let your little friends from the other South American country know what is going on at present." Sir Charles was presumably alluding to Peru, for which country the Electric Boat Company had been building ships. I suggest that if pledges of secrecy have in fact been disregarded so lightly as these letters seem to imply, the present system of international agreements between firms making armaments for private profit must occasion some anxiety for the admiralties.

Yet another question that is suggested by the published correspondence is this. Is it the case that the armament firms in one country and another make secret agreements for collusive tendering, so as to force up the price against purchasing governments? It appears from a number of letters and statements in the American Inquiry that Vickers were party to collusive arrangements of this kind. We find, according to a letter from the Electric Boat Company, dated 28th December, 1921, that the American Company "authorised Vickers to submit a tender for the work to be done in England" (work on submarines for Brazil) "at prices which they submitted to us and which we approved." The spokesman of the Electric Boat Company stated in the Inquiry that Vickers was given by them the alternative of raising their bid to the Brazilian Government, or else of making a low bid and paying a high percentage to the American company. In the candid

words of Mr. Carse of the Electric Boat Company in the same letter, "Too many bids for the same thing might prove very inconvenient."

Here is another example of the same kind of price raising. In Exhibit 115 Mr. Spear of the Electric Boat Co. writes to his company, on September 20th, 1923, about an order for warships for the Argentine which he had been discussing with Sir Trevor Dawson of Vickers. He says in this letter that he has advised Commander Aubry about this business; Aubry was the agent of the Electric Boat Co. in Peru, and in 1929 became agent for Vickers as well. "I have advised him" (i.e., Aubry) "in a general way that it may be our policy to support the bid of our English friends in the Argentine and that we may also decide to have a friendly controlled bid put in from Italy. . . . The general idea, of course, is to fix the Italian price a little higher than Vickers' price, and if by any chance they should get the order, the profit will be ample to take care of them as well as Vickers and ourselves."

I should weary the Commission if I tried to cite all the other indications in the American Inquiry about these price raising rings; but here are three more brief passages. In Exhibit 125 Sir Charles Craven is shown as writing, on November 7th, 1927, to the Electric Boat Co.: "During the last few days by skilful manoeuvring we have managed to get some of our competitors' prices in the Chilean competition put up, and so may have prevented a real price cutting war which would have resulted in our taking the boats at a loss." On November 28th, 1930, Sir Charles Craven wrote, according to Exhibit 162, as follows, to the Electric Boat Co.: "For your very confidential information, we have come to an arrangement with Hawthorn Leslie's and Thornycroft's in connection with the Portuguese naval programme. The broad outline of the scheme is that we shall take half and the other two firms each a quarter of whatever orders we can get."

I will only add that other Exhibits, such as 486, 487 and 488 show, apparently, a similar price raising arrangement between Imperial Chemical Industries and Du Pont's.

I have been speaking of business which involves the international armament ring. I must add something about the question whether armament rings exist within this country.

Firstly, I refer to a case which concerns past events but which cannot by any means be regarded as dead. I submit that inquiry is called for into the question raised by Exhibits 18, 19 and 20 in the American Inquiry. In the absence of explanations, these letters from Sir Charles Craven to the Electric Boat Co. in 1927 must occasion public anxiety; for they seem to imply that, before Messrs. Vickers made their fusion with Armstrong Whitworth's, Vickers were collusively arranging with Armstrong's the terms of the tenders which would be put in to the Admiralty. When Sir Charles Craven states, in a letter marked "strictly private," dated November 30th, 1927, that "for your private information, I was in a position to look after Armstrong's and keep them out of the picture on this occasion," was he not in effect describing a secret agreement to bleed the taxpayer? When he wrote in the same letter "I am trying to arrange things so that with the Admiralty we count as two shipyards and can therefore put forward two tenders, but this of course will be rather difficult," what was his motive if not that Vickers and Armstrong's should put up an appearance of competitive tendering, when in fact their tenders would be subject to previous agreement in the interests of the combine?

I hope that the inference which these letters appear to suggest can and will be rebutted. But I hope also that fearless and searching inquiry will be made.

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I have been able in this instance to hang my case upon a particular example since the American Inquiry has been the means of disclosing some of the documents which the parties to the business would otherwise conceal. The rest of my case is not less important, but cannot be based, at least so far as my evidence is concerned, upon documents already published. I submit the question—does any agreement as regards tenders for government orders exist amongst the firms which compete, or ostensibly compete, for government orders for armour plate? This question is, I suggest, relevant to the Commission's terms of reference; for if there is such an agreement—and past history suggests that it is not impossible—then manifestly the public may suffer from the exactions of a virtual monopoly working for profits in the supply of a commodity which is still regarded as very important for national defence.

Lastly, I raise the same question in a still more important connection. Is there a secret agreement between some or all of the British firms which make military aircraft for the government of this and other countries? I put this question not because I have any knowledge that such an agreement exists but because, under the present system there is an obvious danger that it may exist, especially in what is now the largest branch of the armament industry wholly or almost wholly outside the restraining influence of competition by government factories. Let us assume for the moment that the nations must go on making military aircraft with which to menace each other in the name of "security" (though personally, I must say, I hope that assumption will be generally recognised before too late as the fallacy that it is). Assuming that we must have national air forces, is it not financially imprudent—to put the case at its very lowest—to rely entirely on private manufacture without even that check upon prices and quality which a few state-owned factories might afford? Would it not be wise, in any case, to make very sure, by such means as this Commission has at its disposal, that an industry subject to such exceptional temptations to arrange for collusive tendering at the national expense does not succumb to those temptations?

I have spoken of the danger that armament rings, impelled by the motive of private profit, may combine to force up prices against their customers. But that, of course, is not the main point I want to bring out. The essential point is that the firms engaged in this business must, under the present system, be in a position to play into each other's hands in promoting the expansion of armament orders and in opposing disarmament. The letter, apparently from the Electric Boat Co., to Sir Charles Craven, dated 6th August, 1928, which appears as Exhibit 127 in the American Inquiry, expresses a concern which must be shared by British firms as well as American and other firms, engaged in this business: "it is too bad that the pernicious activities of our State Department have put the brake on armament orders from Peru by forcing the resumption of formal diplomatic relations with Chile."

I have put to you three main points about the evils alleged in the Covenant. I have maintained and tried to show that the present system of armament production for private profit and the almost wholly unregulated traffic in arms must and does have certain evil consequences.

One, the arms traders must desire conditions in which there is a demand for their products, and must, with their great resources, be in a position to stimulate that demand.

Two, the system must and does tend at least to a dangerous confusion of interested with disinterested motives and may at the worst lead to corruption inside and outside the public services and the exercise of undue influence by interested parties.

Three, the system lends itself to the formation of armament rings in a position to play into each other's hands in stimulating demand and in exploiting the taxpayer by collusive tendering for government contracts.

I venture to claim that those three points alone are sufficient, and are sufficiently established, to justify the conclusion that the present system is open to very grave objections and must in some way be radically changed. What form should that change take?

PART II.

REMEDIES.

I come now to the major question: assuming the existence of such evils in the present system as I have indicated, what remedies might usefully be proposed? In the memorandum which has been submitted to you by the 26 organisations on whose behalf I speak, the first point emphasised is that the unregulated arms trade is only one of the factors which make for international anarchy, and that by far the most important task is to amend the situation in which there is a demand for armaments, whether manufactured by private enterprise or by the state. This particular problem about the arms trade is, of course, only an item, though an important item, in the much larger problem of securing a genuine renunciation of war, a limitation, reduction and eventual abolition of national armaments, and the development of a collective peace system based upon a universalised League of Nations.

(A) *The Licensing System.*—The first point I want to make concerns the British licensing system. The League of Nations Union has already submitted to you the view that no mere licensing system, however comprehensive, will suffice to prevent some of the principal evils of the present system of arms traffic, unless limits are fixed for national armaments by international agreement. That view is fully endorsed by the organisations on whose behalf I have the honour to speak. It is an argument which applies, of course, not only to the export trade in armaments manufactured by private enterprise, but also, at least to a considerable extent, to armaments that might be exported by state factories. The government of a country which exports armaments may desire, and as matters stand, will desire, that the factories within its territory, whether state-owned or privately owned, shall get a lion's share of whatever business in armaments may be available. The American Inquiry has shown many examples of the direct intervention of government officials in order to promote sales by armament firms in foreign countries. I need only refer, as an illustration, to the case in which the American cruiser *Raleigh* was used to demonstrate the war material offered for sale by the Driggs Company to Turkey. Other illustrations concern the alleged use of the British Diplomatic Service for promoting the trade of British armament firms in South America, Finland and elsewhere; and I hope the Commission will find occasion to inquire into the question whether H.M. Legations and Embassies abroad, e.g. in Scandinavia, have been used to induce foreign governments to buy armaments from British firms. My point is that, if a government, for whatever reason, desires an expansion of the armament trade of its nationals in foreign countries, the licensing system will not avail by itself to prevent such evils as now result from the system of touting for orders, so long as the market remains capable of expansion to an indefinite extent. It is most desirable that the licensing system and any other method of regulating the arms traffic should be fitted into the framework of a general agreement to limit the quantity, quality and cost of armaments. I do not wish to suggest that an extension of the licensing system, such as the American Government has proposed, would

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be worthless without a general disarmament treaty; but I do maintain that its value would be enormously diminished.

The Commission will presumably have occasion to consider whether the British licensing system as it now stands calls for improvement. I suggest that, in this connection, inquiry is desirable on these three points.

(a) Firstly, is it the case that, under present conditions, almost all the licences actually applied for are granted, virtually as a matter of course? I note that on 24th April, 1934, the President of the Board of Trade stated, in answer to a question in Parliament, that during the past four years, 1930-1933, only seven formal applications for licences to export arms were refused. He added, however, that "in cases of doubt prospective applicants normally make informal enquiries." In the 12 months ending 31st October, 1934, 415 licences were granted and seven refused. I raise the question not, of course, with the idea of suggesting that the British licensing system, such as it is, is valueless, but only to show that it may not have so substantial an effect in regulating the British trade as has sometimes been claimed.

(b) Secondly, I submit the question whether British firms have attempted or planned evasion of the licensing system, and what steps are taken to ensure that armaments are not falsely described by their exporters as commodities of some other kind. "Tractors" for instance to represent an export of tanks. I raise this question because the American Inquiry has shown that, in the United States, such control as existed is utterly inadequate to secure even an approximate enforcement of a licensing system.

I refer to the evidence of customs officials at New York. As to our own country, where the legal position is, of course, better, the Inquiry has also thrown light upon the dealings or intended dealings of Soley & Co., a British firm, stated to hold enormous stocks of war material obtained from the War Office. Captain John Ball, director of this Company, refers in his letters (Exhibits 256, etc.) to the need for submitting "to a fairly strict control by the authorities concerned"; and in his letter of 3rd February, 1934 (Exhibit 257), in which he agreed to appoint the American Armament Corporation as the firm's sales representative in Latin America, it was specified that "all the regulations governing the sales of arms from Great Britain into U.S.A." should be observed. Nevertheless, we find Captain Ball writing on 24th March, 1934 (Exhibit 260), as follows:—"We have, of course, heard from several sources that Bolivia wants A.A." (anti-aircraft) "guns quickly, but we do not think for a moment that a shipment or sale to Bolivia could be made direct while that country is at war. If, however, an American armament firm of some standing bought the guns, for eventual re-sale, things might be easier, or if the Colombian Government, who are not at war, bought the guns, they could no doubt have them." The letter raises the question whether this company, closely associated as it is with the British War Office, and controlling stocks which, according to its own claim, "are of such magnitude that the sale of a big block of them could alter the political balance of power of the smaller states", has been seeking to evade the embargo that was imposed by the British Government upon exports to Bolivia and Paraguay. In passing, I suggest that the holding or controlling of stocks of this magnitude by any private firm, however reliable, may constitute another dangerous feature of the present system. This firm, for instance, lists, amongst the stocks controlled by it, armaments valued at approximately £6 millions, including a million rifles and a hundred and twenty million rounds of ammunition for rifles and machine guns, and many tens of thousands of machine guns of various types.

(c) Thirdly, I submit the question whether there are in fact such gaps in the British licensing system as might have the effect of stultifying an embargo or rendering illusory the apparent effectiveness of the licensing system.

The President of the Board of Trade stated in Parliament on 7th June, 1932, that, where English firms have factories abroad for producing munitions of war, the licences do not apply: they apply "only to exports from this country." Does that mean that Messrs. Vickers, for example, are free, or have a blanket licence, to export raw material, partly finished material, or finished parts or completed weapons, to their associated firms in Japan and elsewhere?

On 9th March, 1933, Mr. Baldwin was asked whether the embargo on exports of arms to the Far East would affect the Air Ministry licences granted in 1932 for the manufacture of British aircraft in Japan. He replied that the embargo then in force "does not affect the manufacture of aircraft in Japan." Does this mean that British firms manufacturing aircraft and having associated houses in Japan could virtually ignore that embargo upon exports to Japan and China which caused so much stir at the end of February, 1933, when Japan had been condemned as a violator of the Covenant.

It has been stated in Parliament on a number of occasions, e.g., on 28th June, 1934, that specific licences are not required for any aircraft exported to any destination other than Abyssinia, unless these aircraft are fitted with armament; in that case, licences are required for the armaments only. Does that mean that aircraft of military design can be and have been exported to Germany, for example, unlicensed because unarmed? Does the system allow for the unlicensed export of aircraft engines of a type suitable for military machines?

I suggest that whatever decision may be reached as to the imposition of a really comprehensive licensing system for exports, imports, and manufacture on the lines proposed in the American draft convention on this subject, some review of the present British licensing system may be found desirable, and that the questions I have ventured to put are amongst those which would be pertinent. I put them, of course, as questions to which, frankly, I do not myself know the answer. The system may in fact be perfectly watertight; but the Commission will, I think, agree that, in view of the answers in Parliament which I have cited, the layman cannot yet feel assured that the licensing system is adequate even for its own very limited purpose.

(B) *The American Arms Trade Plan.*—I pass now to a more important subject—the American draft convention which has been under discussion at Geneva. The League of Nations Union has expressed to you its unanimous opinion that this convention, as submitted to the Disarmament Conference last November, in document Conf. D. 167, should be accepted in its general lines: The Union has declared that it "would regret any amendment to the draft convention which would lessen its effectiveness, and hopes that the Royal Commission will recommend the signature and ratification of such a treaty under the second of their terms of reference." Major Hills this morning spoke in the same sense. And I now submit just the same recommendation on behalf of all the organisations for which I speak. As you will see from the memorial submitted, these organisations share the view that the American plan would be a substantial step in the right direction; and many of them have been active in urging the withdrawal of the British Government's proposal for the abandonment of some of the main features of that plan.

Forgive me if, at the risk of a little repetition, I recall the sequence of events and the main points

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at issue. I venture to do so because the subject was by no means exhausted at the Commission's first session, because essential documents have not long been available, and because there are grounds for thinking that the nature and purpose of the American plan are still somewhat widely misunderstood.

On 30th May last year the American delegate at the Disarmament Conference made, you remember, a notable declaration on this subject, calling for the control or elimination of

"the production of and traffic in engines of death and the profits resulting therefrom . . . Those in all countries who had a financial interest in fomenting international suspicion and discord, which in turn increased the demand for what they had to sell, must be put into a position in which they had neither the power nor the incentive to do so much evil . . . The U.S. Government was ready to join in measures for suppressing that evil and were prepared to negotiate, in connection with disarmament, a Treaty that would deal drastically with the problem."

I recall that declaration made in the name of "the American people and Government" in order to emphasise at the outset the extraordinary importance attached to this subject in the United States. We ought not to forget that.

On 8th June last year the Disarmament Conference decided that there were at least three parts of the disarmament convention on which work might usefully be resumed at once; and one of these parts concerned the arms trade. Accordingly, on 30th June, the American delegation submitted their first plan to the Arms Trade Committee. The intention of this plan was that it should form part of the disarmament convention; so it included references to the limitations of armaments that were to be provided presently by the Geneva convention, and it assumed that the permanent disarmament commission would be provided for elsewhere in the Convention.

But at that stage unfortunately the international situation worsened; and on 20th November the Bureau of the Conference decided that it would be better to proceed with the arms trade plan in the form of a limited convention which might be at once a useful contribution in itself and also a means of facilitating the conclusion of a disarmament convention. The Americans therefore revised their plan, so as to make it a convention which could stand on its own feet as "a treaty of limited objectives." For this reason, the second American plan omitted all reference to limitations of armaments, but it included, as the earlier plan had not, those provisions for a permanent disarmament commission which had already been worked out.

It will be appreciated from this review how specially important it was not to fail in welcoming and making use of this valuable American contribution, especially at a time when the long disarmament effort had reached so disheartening a stage. I must express my conviction that an extraordinary effort should have been made to secure the early acceptance of that American plan without substantial change, so that it might serve, as the Americans intended, both as a self-contained treaty of limited objectives and as an item which could be included in the general disarmament convention without substantial reconstruction.

Unhappily, however, that is not what has happened. In February of this year the Arms Trade Committee met to discuss the plan, and, contrary to expectations, the British Government took the lead in opposing some of its vital provisions. The document has emerged from its first reading with a few clauses agreed upon

unanimously, though sometimes in a much weakened form. The other clauses are presented simply as a series of conflicting texts in parallel columns, the British Government being the leader of a small minority, generally including only Italy and Japan and sometimes Poland. The door is not yet shut. It may still be possible at the second reading to secure an agreed convention: but I must frankly say that so far as I have been able to learn there is little chance of this unless the British Government modifies its policy and accepts a less eviscerated convention.

The purpose of the American plan, you remember, was this.

1. *State Responsibility*.—The contracting states were to assume entire responsibility for the control of arms trade and manufacture in their territories. This has been much weakened in the corresponding article of the first reading text.

2. *Licences*.—All manufacturers, and all exports and imports of armaments of the kind listed in certain categories, would be licensed by the state. A substantial measure of agreement has been reached about this, though it is still by no means complete.

3. *Publicity*.—All armaments of the kinds listed, whether made in state or private factories, were to be subject to a system of publicity, from the stage of ordering to the stage of delivery, the particulars being supplied to the permanent disarmament commission at Geneva. This crucial provision for publicity of orders has been rejected by the British Government. The publicity proposed by the British, the Italian and Japanese delegations would apply only to the *total values* of the articles in certain categories.

4. *Supervision*.—The whole system was to be subject, though with certain important exemptions, to periodic inspections on the spot on behalf of the permanent disarmament commission: it was emphasised that such inspection ought to be such as to be effective without being annoying. It was claimed that such inspection was essential as a means of establishing mutual confidence between states in those cases where confidence is lacking or might be in danger. The British amendment eliminates altogether this crucial provision for inspection on the spot: it merely provides for report by the governments themselves to Geneva.

Thus there are three main points on which the British plan differs from the American.

(a) *Inspection on the spot*.—Firstly, there is that point about inspection on the spot. The British Government, in its memorandum of 29th January, 1934, declared at last (many people thought much too late) that it would be willing "if general agreement is reached on all other issues, to agree to the application of a system of permanent and automatic supervision, to come into force with the obligations of the convention." In other words, that guarded acceptance of the principle of inspection on the spot was conditional upon the conclusion of a general agreement for the limitation of armaments. The argument now advanced (e.g., by Mr. Stevenson, the British delegate, on 13th April, and by Lord Stanhope on 14th February) is that, so long as there is no limitation of armaments, there will be nothing substantial to inspect. Lord Stanhope also used the argument that we must rely confidently upon the good faith of the governments which forward information to Geneva. The critics of this argument point out that there would be something very substantial to inspect if, as the majority of delegations desire, there is publicity for orders and amounts as well as for mere values. They hold also—and for my part I think their argument is irresistible—that we shall never get anywhere if we begin by postulating that we

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must rely absolutely upon mutual confidence. The essence of our problem is precisely that in some cases that mutual confidence is unhappily lacking.

It is sometimes argued that inspection on the spot can only serve to create ill-feeling and cannot really be effective. The experience of the Allied Control Commission in Germany after the War is cited as evidence of this. I cannot think, however, that this illustration is a conclusive proof. It must be remembered that we are dealing here with a situation that would be very different from that which existed under the unilateral disarmament scheme of Versailles. Then, the Germans were not willing partners in the enterprise; they could not feel that the system of inspection was of service to a cause that was Germany's as well as France's and England's; all Germany regarded itself, rightly or wrongly, as the victim, not as the partner, in the system. But under such a convention as we are discussing—a convention in which, it may be hoped, Germany would be a colleague upon terms of full equality—the system would have an utterly different psychological foundation. I do not claim that we could hope for full loyalty by all states overnight. I do not suggest that for a moment, in the face of determined evasion on a great scale, a system of international inspection, even if voluntarily accepted at the outset, would be 100 per cent. effective. Far from it. But I do maintain that a system of inspection on the spot is absolutely indispensable for psychological reasons if for no others, and that such a system, operating normally as a matter of course at fairly frequent intervals, would be far less likely to give rise to recriminations and bitterness than a system of inspection intended to operate only in the event of an actual allegation of some evasion of the agreement.

I have just received a resolution which was passed unanimously yesterday by the Women's National Liberal Federation, supporting the view I have expressed and urging acceptance of international control "including inspection on the spot."

It is not possible, of course, for a layman without inside information to weigh the considerations which determined the British Government's policy in this matter: I do not know what calculations as to the probable reaction of Germany, for example, made the Government decide to reject inspection on the spot at this stage. But I do know that the elimination of this element from the American plan is widely regarded, abroad and at home, especially in France and America, as a very heavy blow to the chances of agreement upon such a convention.

(b) *Publicity for Orders.*—The American plan proposed publicity for all orders from whatever source received.

(c) *Publicity for quantities to be manufactured or purchased.*—The first reading text, as submitted by the majority of the Committee, provides for publicity showing the quantities of armaments of certain categories to be manufactured or purchased in the course of the year by the government; and also a description of the articles ordered. The British Government's proposals, on the contrary, provide only for annual statements by each government of the expenditure which it intends to incur on armaments, coupled with quarterly returns by value only of production, exports and imports. It has even been made plain that the British Government is not willing to transmit to Geneva copies of the licences issued by it. The American plan would show promptly when an abnormal armament demand was springing up in a certain quarter. If, for instance, some South American state was preparing for a conflict with a neighbour state, the orders placed with British and other firms would be reported fairly promptly to the permanent disarmament commission. In

the words of the American delegate "they wanted to follow a cannon from its birth to its maturity." Under the British plan, the state in question might give an honest or partly honest statement of its intended orders, merely in terms of total value, for the forthcoming year: but that statement made in January might, if I understand the plan rightly, be stultified by the orders actually given in February.

The Committee's draft, in calling for a statement of all manufactures effected during the year, calls for something definite and easily calculable. The British alternative, which calls only for a quarterly return of the total value under each heading of the categories of the armaments manufactured, calls for something quite indefinite. How is this value to be assessed? I do not know. It is not indicated in the draft. What is the real use of such information when obtained? This point about publicity for orders and publicity for quantities is really much more important, I believe, than the other point about inspection on the spot.

It is impossible, I repeat, for a layman who was not present at these intricate discussions, held largely in secret, to estimate all the factors which went to the making of these compromises and amendments. But I do feel bound to express the opinion, for what it is worth, that the British reservations knock so large a hole through a most promising project as to make it most unlikely that either France or the United States would subscribe to the poor residue that would survive if those reservations were accepted. There is a chance for a revision of British policy at the second reading. I do trust that the Government, which in its policy about this, is in line only with fascist Italy and militarist Japan, will see its way before too late to make that policy more consonant with that of the United States. For here, I believe, on the lines of the American plan and already acceptable to the great majority of nations at Geneva, a very important contribution could be made towards solution of the problems covered by this Commission's terms of reference.

(C) *A National Armaments Board.*—Reference has been made at your earlier session to the desirability of establishing a national armaments board with the status of a public corporation, charged with the responsibility of controlling the manufacture, sale and distribution of arms. I want to support this proposal. I believe that some such organisation, free so far as possible from the pressure of vested interests, will have to be set up if the nation is to assume that "full responsibility" for supervision and publicity which the British Government has provisionally approved of in Article 1 of the first reading lately completed at Geneva; and I believe that such a board, by serving as the channel through which armament orders from at home and abroad will have to pass, would do a great deal to eliminate such evils as I described in the first part of this statement. But I shall not attempt to supplement what has been said on this subject by Colonel Carnegie. I had hoped that Mr. Ramsay Muir would be able to be here to do so, but as I have said, he is compelled to be elsewhere.

(D) *Nationalisation.*—I have spoken of the need for a review of the British licensing system in any case. I have urged that the American arms trade plan should be accepted without weakening amendments, and that the British Government should endeavour to get the second reading text generally accepted without those damaging amendments to which I alluded. I have expressed the belief that a national armaments board is desirable. Finally, I want to urge, on behalf of all the organisations for which I speak, that all these steps would be insufficient. What is that powerful force which has created all the difficulties

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I have indicated? Partly, of course, national apprehension, but in large part the motive of profit making. What is needed now is action to take the profit out of war and the preparation for war.

I submit that the state should assume direct responsibility for completing the manufacture of all casualty-producing weapons; and that the object of the measures taken should be (to quote the proposal of the French, Spanish, Polish and Danish Governments in March, 1933) "to reserve to the state that part of industrial production which renders it unfit for pacific purposes and destines it exclusively for military use."

It is sometimes argued that "armaments" cannot be adequately defined. That contention is impossible to sustain, in face of the facts about the British licensing system and in face of the schedule of armaments included in the draft convention of the Arms Trade Committee. Moreover, what matters most in this business is that the state should be in a position of absolute control, not over every single item which goes to the making of the vast machine of war, but over those items without which modern war cannot be conducted. If the state can command the neck of the bottle, it can command broadly speaking what shall come out of the bottle.

It is sometimes argued that the state cannot afford to forego the advantages it derives from the cheap and rapid expansion of armament production by means of a flourishing private armaments trade. It is pointed out that these firms can be kept happy and busy without cost to the home government by allowing them to pour out their killing power—though not perhaps of the very latest model—to all the powers of the world except x, y and z. I recognise the force of that argument; but I remember the impressive finding of the McKinnon Wood Committee in March, 1919 (Cmd. 229), after the most tremendous trial of the national armament production ever known. The Committee wrote, in its second interim report to the Ministry of Munitions: "It is also probable that the country will insist on the production of all armaments being confined to government factories; nor would the disappearance of the larger armament firms materially handicap production in the event of a serious war. . . . The magnitude of present-day war operations is such that the reserve of manufacture in peace-time for war development cannot be looked on as being concentrated in the government arsenal and two or three particular firms. The real reserve for war is the whole of the manufacturing power of the country, which has been educated in the supply of armaments."

It will be argued, no doubt, that nationalisation of the completing stage of armament production would be extremely costly. In reply, I recall the fact that the French Ministry of Finance in 1933 was charged with the task of estimating how much it would cost France to abolish private manufacture of armaments, with compensation for the shareholders of the private firms. The Ministry reported that the prices at which armaments were supplied by the national arsenals were found to be so much below those of the private firms that the savings on the defence budget would cover the whole cost of compensation, and that no addition to taxation would be required. I cannot say, of course, whether a similar inquiry in this country would yield similar results, but I see no reason to suppose that it would not. It would be relevant in this connection to compare the prices of munitions in the early stages of the war with those that afterwards resulted from the work of the Ministry of Munitions. In the *History* of that Ministry, it is stated that "the immense savings in the cost of gun ammunition during the first year of the Ministry's existence were chiefly effected by confronting the larger contractors with the cost returns from these" (the national) "factories."

It is often argued that the non-producing states would be in a worsened position. I do not think this assumption has been proved; and I recall the conclusion submitted by Denmark, which is one of the countries in question, to the Disarmament Conference in February, 1933 (Conf.D./C.C.F. 31) "The non-producing states derive no benefit from the system of private manufacture. The abolition of this system would not therefore modify the situation of non-producing states in any way."

I have indicated some of the objections commonly advanced. There is one other that I venture to refer to, since it was raised this morning. It was then suggested by a witness that control and nationalisation are, in effect, antitheses. It was suggested that the American plan was the opposite of nationalisation. I do wish to point out, if I may, that that would be a misreading of the American plan. That plan was specifically intended to cover both production in state factories and in private factories. The plan makes that perfectly plain, and the American delegate, Mr. Wilson, repeatedly emphasised that point. At one juncture, for instance, the Russian delegate raised the point that the American plan would weigh exceptionally hard upon state factories. The American delegate assured him in reply that it was intended to apply with exactly equal force both to state factories and to private, and that if there were any need for an adjustment of the kind suggested he would be willing to see whether the point could not be met. I mention it because, you see, any scheme of control that would be acceptable at all must be one that can apply to countries whose manufacture is wholly in the hands of the state, or countries whose manufacture of armaments is wholly in the hands of private firms, and also to countries like our own, where the system is a mixed one, partly state-owned and partly private. It is important to recognise that control, supervision, publicity, may apply both to state manufacture and to private, and will be necessary whether we choose to adopt an extended nationalisation in the armament trade or not. The two are not antitheses, as was suggested by the witness this morning.

I do not suggest that the state should take over the entire iron and steel industry, or the entire chemical industry: I am not arguing that the state should undertake the manufacture of every part of every weapon: I am not claiming that the state ought to try to disentangle state-owned armament factories completely from privately-owned ones. What I do submit is that by one means or another, the profit-motive must be and can be taken out of a business so closely "connected with the public interest" as armament manufacture. The state should reserve to itself alone the responsibility for making such weapons as tanks and artillery, submarines and military aircraft. And I submit for consideration (though here I express only a personal opinion) that the manufacture of armaments by the state, or manufacture by private firms on a cost basis, need not necessarily be entirely separated physically from the manufacture of non-military goods by private industry. In some cases the state might take over, in the complex of a great industry, those complete buildings and plant which are principally used for production of an exclusively military character; and that state-owned plant might on occasion be made available to the private industry, on payment of regular charges, at the discretion of a national armaments board. This is not a Utopian project: it is what this country actually did on a large scale during the war.

Many of the men who helped to direct the system of separate accountancy which made it feasible are still living: and I venture to suggest for the Commission's consideration that some of these men, who had experience of the costing system in the Ministry of Munitions, might perhaps be invited to give evidence here.

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I have raised this point partly in order to bring out the point that the extension of state manufacture to cover the completing stage of the great casualty-producing weapons need not and should not involve a dislocation of heavy industry or a vast programme of replacement of existing armament factories or a building of many new arsenals.

In conclusion, those organisations on whose behalf I speak are convinced that the motive of private profit affords a stimulus to armament production which is socially injurious; and that so long as national armaments are required, their supply should be limited and regulated under thorough supervision. All these organisations endorse the proposition that the state should assume direct responsibility for completing the manufacture of all casualty-producing weapons. And in their view, this suppression of manufacture by private enterprise should not wait upon a general agreement in favour of such suppression in all arms-producing countries, though it should be carried out within a system of international supervision such as the American plan would provide.

I cannot sit down, Sir, without thanking you for listening to me in making so much too long a statement.

491. *Chairman*: You have stated your case very fully and very clearly, and there are very few questions I want to ask you; but with regard to the last paragraph in your statement, which you have just read, you say that "all these organisations endorse the proposition that the state should assume direct responsibility for completing the manufacture of all casualty-producing weapons." Now, you recognise, do you not, that there are practical difficulties in carrying that out? Take, for instance, one thing that is in my mind. How would you propose to deal with aeroplane engines, because although I do not understand the thing very clearly I do understand, I think, sufficiently that an aeroplane engine may be used either for civil purposes or for military purposes? You cannot distinguish; it is the same engine. Well, how would you deal with a practical difficulty like that? At what stage would you say that the state should interfere?

Mr. Arnold-Forster: I think, Sir—and, of course, that is the reason why you chose the example—that that is much the most difficult of the problems that this proposition presents. Plainly, as you say, those aircraft engines can be used—at least in some degree—whether for military or for civil 'planes. That is one of the reasons for my earlier reference to the possible weakness of the licensing system. Colonel Carnegie has, I think, suggested that it would be advisable, in so important a case, for the state to take over the whole manufacture of naval and military aircraft. I have in my statement suggested that one contribution to the solution of the problem is to abolish entirely by international agreement, as our Government and other governments have proposed, all naval and military aircraft. That is, of course, a corollary not irrelevant to the subject, but outside the terms of reference, as I recognise, of this Commission; but, to answer your question, Sir, may I give an illustration of the kind of distinction that I think could be more easily drawn. In the manufacture of a warship you require armour plate. In the manufacture of that armour plate you use plant which is used solely, I believe, for that purpose; if not used solely, at any rate used preponderantly for that military purpose. You could not require that the state should take over the whole of the iron and steel industry; I am not suggesting that; but you could require that the state should take over that plant which is devoted to the manufacture of armour plate and you could require that the state should take over those sheds, that plant, which is devoted to the purpose of making the great gun barrels. That plant is of course required for no

other purpose than its military purpose, and I submit that there is no insuperable difficulty, as these various governments have suggested, in establishing, not with a hundred per cent. precision, but in establishing adequately, a point at which it is desirable that the state should take over that responsibility; my point being this, that it is not necessary—it is not practicable, if you like—for the state to have a hundred per cent. control over the whole field of contribution to armament manufacture: what is necessary is that the state should have control at the neck of the bottle. The state should have control over the completing stage of the production of those weapons without which war between organised modern states cannot be conducted with hope of success; and that, so far as I have been able to learn, is not an impracticable definition to draw.

492. *Chairman*: Then you make a reference, as other witnesses have made a reference, or are going to make a reference, to the McKinnon Wood Committee. Well, I do not know whether you know of the position with regard to that Committee, but we have ascertained that no shorthand was taken at all of the evidence of the witnesses, but the secretary, who seems to have been able to take notes in shorthand, took some notes in shorthand, and he reproduced those notes as minutes of the meetings; and one copy at least—I do not know whether there is more than one in existence—of those minutes has been discovered, and it is in our possession; and therefore we are able to deal with such material as there is in existence with reference to the McKinnon Wood Committee.

I have read the evidence. I think there were eight meetings of the particular sub-committee that dealt with the question of Woolwich, and their attention was directed almost entirely to the capacity of Woolwich for the uses to which it should be put in the future, and there was only one witness called who was not either an official or a member of either the Army or the Navy, I think. That one witness was Sir George Buckham, the chief designer of Messrs. Vickers, and he was called in order to give evidence to show what the difference in system at a private firm and at Woolwich was, and there was no evidence taken at all as to whether or not in the future the system should be a purely national system, or whether private factories of arms should be continued; and as far as I can see from the evidence, the remark in that report which you quoted arises from the fact that one witness, in giving his evidence, suggested that Woolwich should remain only as a sort of nucleus for research, and so forth, and that private armament firms should be subsidised; and in answer to that evidence, the Committee make an observation, which appears in the minute, which seem to be the foundation of what they report in the passage you have read; and of course one must remember that at the time they reported, it really was assumed that the peace that would follow would probably prevent the necessity for the manufacture of arms to any extent. That is the best conclusion I have been able to come to in reference to this report of the McKinnon Wood Committee, and I mention it, of course, because I may be under a misunderstanding. It may be that some member of the Committee who hears what I say or reads what I have said may correct it.

Mr. Arnold-Forster: May I thank you for that information, Sir, which I am sure will be of much interest to those who have studied this report without knowledge of what lies behind it.

493. *Chairman*: If you will forgive me for a moment, I could refer to the evidence. The evidence I refer to was the evidence of Major-General the Hon. Sir F. R. Bingham, member of the Munitions Council—

"(1) That Woolwich as the future Main Supply Arsenal was out of the question. Geographically, it was wrongly situated,

(2) But Woolwich must be the nucleus of the munition-producing capacity of the country and the

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[Continued.]

parent of all factories making practically every type of gun and ammunition and component, and for which there must be a unit of production maintained constantly up to date. This was necessary not only to maintain a small reserve but to enable—

(a) Experimental work to progress; and
(b) Foremen to be trained so that they could be sent out to factories throughout the country.

(3) Woolwich should keep drawings of all the gauges that were likely to be required. He was in favour of Woolwich keeping a stock of gauges, but appreciated that patterns changed so frequently and such an enormous stock would be required that this would be out of the question. He desired to emphasise, however, that at the beginning of the war the universal demand of manufacturers was for gauges.

(4) That some of the armament firms should be maintained (possibly by means of a subsidy) in a state of readiness to produce munitions immediately a war was imminent, and that, with the exception of one or two, the New National Factories should be closed down and left dormant, their machinery being stored."

Then this is what it says on the minute:—

"The Committee discussed these expressions of opinion, and the views were expressed—

(a) That the annual demands for munitions after the war would be comparatively so infinitesimal that the armament firms could not be expected to be kept going for munitions work, and that future Parliaments in all probability would not permit of subsidies being granted.

That it would be possible in future to watch the progress of munitions in other countries with a view to ensuring that if a war should come, it would not find us wholly unprepared."

I myself think that the ultimate report which you have read is founded upon the expression of opinion of the Committee, having heard this evidence, that the armament firms could not be expected to keep going for munitions work, and that future Parliaments in all probability would not permit of subsidies being granted. I say that in order that if I am wrong we may be corrected, because apparently the impression has got about that there was a distinct finding, after evidence, on the question between nationalisation and private factories.

Mr. Arnold Forster: Thank you. May I be permitted to add one word, or rather a question, in response to that?

494. Chairman: Yes.

Mr. Arnold Forster: I note in the summary of the main conclusions of that Committee, the statement which echoes the statement made in 1907 by the Murray Committee, that the arguments in favour of the retention of a Government arsenal for munition manufacture in peace-time are overwhelming. That is one point. The other point, the one that I read, seems to go further than that. It goes so far as to say that it is probable that the country will insist on the production of all armaments being confined to Government factories. The very important point that you have brought out, Sir, is that that conclusion was based more on the anticipation that there would be a great reduction of armaments, and that the private firms would have to be sustained by subsidies, more on general considerations of that kind than on any detailed evidence; but I venture to suggest that it does not necessarily show that the inference that I drew from that statement was unsound.

495. Sir Thomas Allen: May I interpolate, Mr. Chairman, on that point, that it is within my memory that after the Woolwich Arsenal Inquiry had been completed, the workmen there felt that they were experiencing depression, and they had an interview with the Prime Minister, who was then Mr. Lloyd George, on the 4th December, 1918. A

deputation waited upon him with regard to the placing of munition contracts, etc., with private firms, and the Prime Minister, in his reply, made this observation: "It is common knowledge that during the war, in point of time, Woolwich Arsenal saved the situation on more than one occasion," and he further stated that it would be "a very great national disaster if Woolwich were not used to its fullest capacity for the work of peace." I think possibly that some impression in your mind might have arisen out of a statement like that, perhaps.

Mr. Arnold-Forster: Thank you.

496. Chairman: In the earlier part of your statement, you refer more than once in terms such as these: "... but that is not the real point at issue." When you use that expression, you mean, I assume, the point at issue, or the point in issue, which is for the Commission to deal with or to decide.

Mr. Arnold-Forster: All I meant was this Sir, that when I referred to particular cases—such as the now fairly well-known letters which have been cited in Parliament in regard to certain correspondence of Sir Charles Craven of Vickers—I was especially anxious to stress that the case I was submitting was not simply that that case should be examined into with the purpose of dealing with whatever might result from such an inquiry in a particular case. The issue that I was submitting to you, and that, I assume, Sir, you are directing the Commission's attention to, is the major issue that underlies all that—not any question of little personal issues of that kind—but the great issue as to what are the grave objections alleged to exist, and what, above all, are the remedies which may be found for those grave objections. In other words, I was anxious to make the point that I am not urging that there should be any chasing off after a red herring. I was anxious to emphasise that I was not merely dragging up personal issues, for the sake of doing so, but only adducing them as illustrations of a case far more important than any instance of that kind.

497. Chairman: I follow that. Now, I think, there is only one other matter that I want to ask you about. You say: "Messrs. Vickers have, it is now disclosed, been paying large sums derived from the British taxpayer to the Electric Boat Co. in the United States." I do not follow why the money is said to have been derived from the British taxpayer.

Mr. Arnold-Forster: Well, Sir, my submission was that the payments were made from the naval estimates to Messrs. Vickers, and that out of the profits received by Messrs. Vickers, large amounts were paid to the American firm.

498. Chairman: But they do not make profits out of the taxpayer, do they, largely? Their profits are largely, or mainly, made from civil business and profits derived from contracts and sales all over the world. It is not the British taxpayer?

Mr. Arnold-Forster: I am sorry; I have not made the point plain. No, I was referring expressly and solely to the business with the British taxpayer, with the British Admiralty. The reference is made in this Exhibit, to which I have given the reference number—I have the document in my hand if you would care to see it—which refers solely to orders for warships placed by the Admiralty with Messrs. Vickers in respect of which Messrs. Vickers paid over certain sums received from the Admiralty to the American company. That at least is the statement that appears in this Exhibit No. 8.

499. Chairman: I follow that. Thank you.

500. Professor Gutteridge: But those payments would be in respect of patents, would they not?

Mr. Arnold-Forster: Yes; they are described as royalties.

501. Professor Gutteridge: It is part of an ordinary business transaction as far as I can see. I am afraid, at the moment, I utterly fail to see the wickedness of it. If the patents of the American company are used in constructing submarines, surely

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[Continued.]

there is nothing wrong in Vickers paying something for them?

Mr. Arnold-Forster: I was at pains to say that I imputed no such wickedness at all. The question I raised was whether, in connection with this, the agreement in question had been kept secret from the Admiralty.

502. Professor Gutteridge: I have got your point.

503. Chairman: However, I think you and I are agreed upon this, that when you come later on in your statement to deal with the remedies, you deal with them as the major point.

Mr. Arnold-Forster: Yes.

504. Chairman: I thoroughly agree with that.

505. Mr. Spender: Mr. Arnold-Forster does not really mean to suggest, I take it, that the failure to come to an agreement with Germany was due to any of Mr. Mulliner's activities, or the failure, even, of the naval holiday in 1912?

Mr. Arnold-Forster: No, Sir. I said: "I do not suggest, of course, that Mr. Mulliner was the main cause of Anglo-German naval rivalry. That would be a fantastic exaggeration." Those are the words that I used. "But," I said, "I do suggest that the sequence of events which followed upon that advice given by an interested party has a lesson for us now." That, I submit, is strictly true.

506. Mr. Spender: That is not very important, is it? Take the number of British battleships in the year 1913. It was Mr. Churchill's opinion, was it not, that they needed very much strengthening, and it was not Mr. Churchill's opinion, as you might infer from the way you put it, that the increase to the Navy was excessive, because in December, 1913, he proposed a very large increase, and that caused, as you will see in his account in *The World Crisis*, the Cabinet crisis in 1913 and 1914. That was presented to the Cabinet in a volume of eighty pages, and he gave a very picturesque account of the fight over it; so it could not have been Mr. Churchill's opinion that the increases in the Navy were excessive up to that point?

Mr. Arnold-Forster: I should not venture, Sir, to take Mr. Spender on, if I may say so, on the history of that period, and I certainly should not venture to suggest that Mr. Churchill would ever have been satisfied with the amount of increase of armaments that he was able to get out of the Government; but I would only say this. I am sorry if my argument was misleading. My only point was this. Mr. Churchill said, most justly as I think, in his book, that he had worked for peace, that he had proposed a naval holiday with Germany, and that that holiday had been prevented. When history threw its light upon those incidents it was found in the Von Tirpitz memoirs that Von Tirpitz had been helped in getting through his supplementary naval bill by the Mulliner scare, which he referred to by name. That was the only point I wanted to make, and I should be sorry to put forward an argument that was misleading.

507. Mr. Spender: It is not so very important.

Mr. Arnold-Forster: Indeed, I thank you.

508. Professor Gutteridge: You have the McKinnon Wood Report before you?

Mr. Arnold-Forster: Yes.

509. Professor Gutteridge: I think one thing they stressed there, too, was this, was it not, that in 1919 there were a very large number of men in this country who had been trained in the making of munitions; I think they call it a large educated reserve or something like that?

Mr. Arnold-Forster: Yes. The words appear at the end of my quotation. They are crucial, I agree. The point that they made was that at the end of the war a great many people did know about armaments manufacture, and therefore there was that reserve available. "The real reserve for war"—I am reading the sentence I quoted—"is the whole of the manufacturing power of the country, which has been

educated in the supply of armaments." You will recall that the same conclusion was reached in the impressive volume published by the United States in regard to the history of their munitions effort.

510. Professor Gutteridge: Yes. Thank you.

511. Sir Thomas Allen: You say: "I submit that by one means or another, the profit-motive must be taken out of a business so closely connected with the public interest as armament manufacture." You also agree with the American plan. Could you enlighten us as to how far, if at all, the American plan meets the object of taking any profit out of war?

Mr. Arnold-Forster: Well, Sir, it would eliminate, as I think, a great deal of the evils of the present system, because it would do a great deal to reduce the danger of solicitation for orders in secrecy. If the American plan went through in unmodified form, the placing of orders would be followed by publicity, and that would mean that you would know what orders were being placed, and would be able, if the American plan has its proper sequel, to ensure that the arms imported into each country were within the limits of a general disarmament convention. Well, of course, that is not provided in the treaty. The point about taking profit out of war would not be covered by the American plan, except to this extent, that it might eliminate that excess profit, that element in the profit, which is derived from such touting for orders as would be thus cut out. But, of course, as I sought to emphasise just now, the American plan is intended to cover both production in state factories and production in privately-owned factories; it would apply, in other words, to a country like Soviet Russia or a country like Great Britain, the one of them having its whole armament manufacture in state factories and the other having a mixed system such as ours.

512. Sir Thomas Allen: The American plan does not at all interfere with the present system of private production?

Mr. Arnold-Forster: Not the least, no. The Americans have, as you know, projects in hand for further measures to take the profit out of war, and the American Arms Inquiry was held, as you remember, largely at the instance of the American Legion on that very slogan, "Take the profit out of war."

513. Sir Thomas Allen: Still leaving the manufacture in the hands of private enterprise?

Mr. Arnold-Forster: Yes, certainly.

514. Sir Thomas Allen: Just one other point. You favour a system of nationalisation, at the same time reserving to the state that part of armament production which renders it unfit for pacific purposes, and destines it exclusively for military use. The Chairman has already put a question to you in respect of aeroplanes. I would like to ask at what point a battleship becomes unfit for pacific purposes, once laid down?

Mr. Arnold-Forster: Well, I should say from the word "Go." I thought the answer to that was plain. It was once maintained, I think, by a British admiral at Geneva that battleships, more precious than rubies to those states which possess them, are purely defensive weapons, almost always purely defensive weapons, almost always used for the purpose of defending convoys; but it was not a view which commended itself to most of the other countries who were not possessors of a great battle fleet. The point there, I should have thought, was quite a clear one. It becomes much more difficult in the kind of case that the Chairman put; but may I be allowed to add one word to that. Obviously there are many parts, many elements in the making of a battleship which a state need not make itself wholly responsible for. There are all sorts of parts fulfilling functions of various sorts, parts which, when a battleship is broken up, one is able to buy for one's back garden or one's doorstep; and those fittings may be made by private firms, and will be secured under the direction of the armament board, or by the contract departments of the fighting services, as now.

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515. *Sir Philip Gibbs*: I take it that all the societies for which you are speaking do actually insist upon nationalisation—that is to say, that is a very strong part of their programme and of their hopes?

Mr. Arnold-Forster: Yes, that was, to me, the impressive feature of the support given to this memorial. I confess I had not expected the response to be so unanimous and wide. The last paragraph of my statement was quoted practically verbatim from that memorial, which has their official endorsement, and I was at pains to quote it so in order to depart in no detail from what I was properly authorised to say.

516. *Sir Philip Gibbs*: Several witnesses who have come before us, including Major Hills this morning, suggested that nationalisation is not really an absolute cure for a great many of the evils which are alleged against the traffic in arms; that we may have confidence in our own government, but that other nations with less confidence might find themselves in the position, really, of making arms for government trade with other countries. Do you think, yourself, that there is any likelihood of that danger? Supposing you have the nationalisation of arms in some countries; they then proceed to manufacture great quantities, and then tout in other countries. How would you deal with that?

Mr. Arnold-Forster: May I say, with great respect, I am grateful for that question. The nationalisation of armaments, as I sought to emphasise to you, would not, in my judgment, remove all the difficulties that we have to face. Plainly, the problem of limitation would remain. Plainly, there is no means of dealing with that problem short of a general disarmament convention. There is no other means of dealing with it at all. I venture to stress that point—that if you had an unlimited market both for government factories and private factories, they would be competing for that market. The exports, whether from state factories or private factories, would be exports into an infinitely expandable market, and, as the American Inquiry has amply shown, the governments have been back of the private firms in seeking to secure for their nationals the lion's share of their business. That is one of the chief points I made; and I should like to emphasise my agreement with the view that nationalisation by itself, if it will solve some, will not by any means solve all of the difficulties. Obviously it will not. Certainly the fact that a particular state has got an extended system of

nationalisation in six arsenals, like our own country, will not, for that country, remove all the evils of the trade, any more than it would in Soviet Russia. And if there was any substance in the submission I have made it will, I hope, be found in the coupling together of those four items: (1) a supplementing of the system of licences; (2) an acceptance of the American plan, which I think is the most urgent step; (3) the consideration of the formation of a national armaments board; and (4), but as linked up with those, that measure of nationalisation which I suggested.

517. *Sir Philip Gibbs*: Of course, most of the points you have raised do not lead us to question you; you understand that. It is other people who must be questioned on all the points you have raised, and therefore, really, there are no further questions to ask you, as far as I am concerned.

Mr. Arnold-Forster: I am much obliged. I was only afraid I had suggested too many points.

518. *Chairman*: It is nearly the time when we usually adjourn, but we were told that there were a considerable number of people who desired to come and support your statement. Well, having heard you, I venture to ask whether there is anything they can usefully add?

Mr. Arnold-Forster: It is not for me to speak for them.

519. *Chairman*: Except, of course, to support your statement in the sense of emphasising what you have already told us, that they agree with what you have said. Do you follow what I mean?

Mr. Arnold-Forster: Yes, Sir. If you ask me as a question, I would express the hope that you, Sir, may ask them, because I cannot help thinking that it might be of interest to the Commission to hear the brief statements that they may make as to the views of the very large organisations which they represent.

520. *Chairman*: May I take it from that that their views are correctly represented in your statement, because if so, we would be glad to hear them to-night and close this part of the examination; but if they want to make any sort of lengthy statement they would have to do it to-morrow. That is what I want to bring before them.

Mr. Arnold-Forster: It is not for me to speak for them on this, but I venture to give an assurance on their behalf that they will not speak long.

(The Witness withdrew.)

Mrs. HARTREE, Acting Vice-President, National Council of Women, called and examined.

521. *Mrs. Hartree*: Mr. Chairman, I speak as a representative of the National Council of Women of Great Britain, which consists of 85 branches and 132 societies. It is a constituent member of the International Council of Women, consisting of 34 national councils. I speak as expressing the deep concern of public opinion in this question of "taking the profit out of war." Both Councils have taken great and continuing interest in all questions dealing with international problems, and both have standing committees studying such problems and reporting on them to the Councils, and I have here a list of resolutions passed by the I.C.W. and also by the N.C.W. (if I may shorten myself by those initials) in full session during the last few years, from which I should like to read the following:—

"The International Council of Women welcomes the proposals for the drastic control of the manufacture and trade in arms recently adopted by the Committee for the Regulation of the Trade in and Manufacture of Arms and Implements of War at the Disarmament Conference."

I might say that this resolution was passed in

July, before the American proposals of November were put forward—

"It urges the National Council to work for the acceptance of these proposals by their respective governments so that they may be included in a general disarmament convention the conclusion of which is indispensable if the race in armaments is to be stopped."

That resolution was confirmed in a large gathering of the National Council at Edinburgh last year in October, with only three dissentients out of over 500 delegates. It also passed at the same time—the National Council I am speaking of now—this resolution:—

"The National Council of Women urges the Government to introduce measures which will take the manufacture and sale of armaments out of private hands and place them under national control."

That was passed also by a large majority, though there were rather more dissentients. Those were the resolutions.

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Mrs. HANTREE.

[Continued.]

I speak not in any way on the moral issue of this question at all, though there are some of our members who feel strongly on the moral issue of the manufacture of armaments by private firms. I speak from the common sense point of view that manufacturers, of whatever commodity, must obviously desire expansion of demand, and therefore naturally take all steps possible to increase that demand. In

the case of armaments such steps include the constant inflaming of public opinion in different countries against each other, of which there is overwhelming proof both before and since the war. It is extremely doubtful whether national and international control and supervision would be sufficient to abolish these activities, and we therefore support the memorandum put forward by Mr. Arnold-Forster.

(The Witness withdrew.)

Mr. S. F. PERRY, Secretary, Co-operative Party, called and examined.

522. Mr. Perry: Mr. Chairman, I think it would be unfair to take up much of your time, as I have had the advantage of listening to a great deal of the statement from Mr. Arnold-Forster, but I do want to speak on behalf of the Co-operative Union of Great Britain with a membership of 7,000,000 in Great Britain, mainly householders; and if you will take the average size of the family you will easily appreciate that we can speak with some knowledge of the feelings of one-half of the people of our country. We have had the opportunity of considering the memorandum and the general policy outlined in it. It has been the subject of discussion at our annual conferences, sectional and district conferences, and we are here to give our whole-hearted support to the general policy laid down by the National Peace Council.

You will appreciate, Sir, that our movement, composed largely of working men and women, has perhaps not gone so deeply into the technical side of this problem as outlined in some of the questions we have had here this afternoon; but I think there are

few people in this country who have deeper and stronger feelings on this matter than we have. I can plead guilty to playing my part in trying to increase the feeling of our Co-operative movement on this matter by one personal experience; and with that I will close. Some years ago I had the opportunity of speaking in the town of Bedford. In the interval before the meeting I was walking round the town, and saw one of the usual war trophies. On that trophy there is a brass plate with this inscription: "Presented to the town of Bedford by the 5th Bedfordshire Regiment. Captured at Gaza." As I read that plate, I pictured the deeds of heroism of the young boys of the Bedfordshire Regiment, and I knew, too, of some of the desolate homes in Bedford. Then I walked round to the other side of the gun, and on the other side of the gun there is an inscription in much larger letters. That inscription read: "Made by Sir George Armstrong Whitworth & Co."

(The Witness withdrew.)

Mr. FREDERICK CECIL WOODS, Member of the Executive Council of the Union of Post Office Workers, called and examined.

523. Mr. Woods: As a member of the Executive Council of the Union of Post Office Workers it is my privilege to represent over 105,000 Post Office employees. We think that it is not unnatural, with the experience gained as a result of our direct association with a great national service such as the Post Office, that the members of our organisation are led to the conclusion that whilst arms of any description are necessary; the efficient manufacture and control of such arms can only be maintained under a nationalised industry. It is anticipated by my Executive Council that witnesses who appear before this Commission who may be associated with the production of arms for profit will endeavour to discredit the efficiency of government departments and the staffs employed by such departments, and will refer to the absence of initiative displayed by government employees. This statement will be made, probably, in spite of the fact that every

Select Committee or Royal Commission that has inquired into Post Office administration has paid tribute to the efficiency of Post Office employees. Thus the suggestion of a lack of initiative, or of inefficiency, on the part of government departments or their employees is without foundation, and we refer to the undeniable success of the Post Office as a nationalised industry, an industry with which my Union is associated.

May I add that on every occasion that the subject of peace or nationalisation has been before the annual conference of my Union the principles advocated by Mr. Arnold-Forster's evidence have been supported either unanimously or by an overwhelming majority. I therefore confidently desire to associate the members of the Union of Post Office Workers with the evidence submitted on behalf of the National Peace Council and other associations by Mr. Arnold-Forster.

(Adjourned to to-morrow at 11 o'clock a.m.)

APPENDIX

STATEMENT SUBMITTED BY THE NATIONAL PEACE COUNCIL AND ORGANISATIONS ASSOCIATED WITH IT FOR THIS PURPOSE

The following expression of views in regard to the matters raised by the terms of reference of the Royal Commission is submitted in the name of the under-mentioned organisations:

Auxiliary Movement.
Baptist Ministers' Pacifist Fellowship.
Baptist Union of Great Britain and Ireland.
Congregational Christian Pacifist Crusade.
Church of Scotland Ministers' Peace Society.
Co-operative Union, Ltd.
Friends Peace Committee.
International Friendship League.
National Co-operative Men's Guild.
National Council for Equal Citizenship.
National Council of Women.
National Guild of Co-operators.
National League of Young Liberals.
National Liberal Federation.
National Peace Council.
National Union of Teachers.
National Union of Women Teachers.
Northern Friends Peace Board.
Society for Research in Education.
Teachers' Anti-War Movement.
Union of Post Office Workers.
Unitarian and Free Christian Peace Fellowship.
Women's Co-operative Guild.
Women's International League.
Women's National Liberal Federation.

I. THE GENERAL CASE.

1. Paragraph 1 of the Royal Commission's terms of reference calls for report on the desirability of prohibiting private manufacture of and trade in arms; and paragraph 2 calls for report on whether there are any steps to be taken to remove the "grave objections" to which private manufacture is stated in Article VIII of the Covenant to be open. Evidently, these questions do not admit of an adequate answer until the grounds for objection to private manufacture have been thoroughly examined.

2. In the Council's view, grave objections do undoubtedly exist: and the Council finds extraordinarily widespread support from public opinion on this point. The anxiety expressed by the authors of the Covenant is widely shared in many European countries, not least by the ex-service men, who united to present an impressive memorial on this subject to the Disarmament Conference in 1933. It is keenly felt in the United States, where the demand of the ex-service men that measures should be adopted to "take the profit out of war" contributed to the decision to hold the Senatorial Inquiry into the arms trade: and President Roosevelt (May 18th, 1934), referring to the dangers of a "mad race of armaments", declared that "this grave menace to the peace of the world is due in no small measure to the uncontrolled activities of manufacturers of and merchants in engines of destruction". The French Government (1933) called for suppression of the manufacture of armaments by private enterprise; or, failing that, for drastic control by international as well as national means. Throughout Great Britain, the Council and each of the organisations here represented have found evidence of the deep concern of public opinion about this question, and of the widespread desire, even in centres of the munitions industry, that the manufacture of war material should no longer be subject to the

motive of profit-making. We understand that one of the associated organisations—the Women's International League—is submitting to the Commission detailed evidence in support of this assertion.

3. The main ground for objection is, in the Council's view, inherent in the nature of this trade and does not require for its demonstration any research or documentary evidence. The manufacturer of armaments for private profit *must* desire the continuance of conditions in which there is a demand for his products: and he *must* be under temptations to stimulate, by whatever means are open to him, that demand. In the case of some commodities such stimulation of demand has no evil social consequences; but in the case of armaments, as in that of noxious drugs, it is open to the gravest objections. The business is perfectly legitimate so long as society allows it to continue; but society cannot well be indifferent to any motive-force which, by tending to increase armament and counter-armament, stimulates mutual apprehensions and suspicions, prevents the general disarmament that the world urgently needs, and imperils "the peace of nations".

It would, indeed, be absurd for manufacturers of armaments to contend that they do not desire the continuance and expansion of their business.

4. If any such contention were, nevertheless, to be put before the Commission, it would suffice to refer, in reply, to the mass of evidence already published and available to the peace movement of the world. This includes the admissions of Mr. Mulliner and other facts of the Mulliner case (1908-10); the Vickers-Mitsui case (1914); the Shearer case (1927-29); the Seletzki case (1933); the admissions by the representative of the Remington Co. in the American Embargo Inquiry (February, 1933); and much of the evidence produced before the United States Arms Inquiry (1934-35). The letters of Captain John Ball of Soley Armament Company, Ltd., to the Electric Boat Co. of the United States contain allusions to bribery on a large scale, into which, the Council hopes, the Commission will inquire; and these letters reflect the mutual interest of the armament firms in a general expansion of the demand for armaments. It is presumably this motive which has prompted the great armament makers to pass on orders to their competitors (e.g. in the case of the Electric Boat Co. shown as passing on orders to Vickers Ltd.) and to share their patents for war-material (e.g. in the case of the Electric Boat Co. and Vickers Ltd.).

The statement has often been published, we believe, without being controverted, that M. François de Wendel, President of the Comité des Forges, closely associated with Schneider-Creusot, has acquired a controlling interest in the "*Journal des Débats*," and is the head of a group which, in October, 1931, jointly with the French coal cartel, purchased a controlling interest in "*Le Temps*"; M. de Wendel is also stated to have interests in the management of the "*Echo de Paris*" and "*Matin*." The Du Pont Company are stated to own three newspapers in the State of Delaware. It can hardly be doubted that such control over organs of the press by those concerned with the sale of armaments for profit is due, in some degree at least, to the desire to promote the demand for armaments.

Much of this published material is of unquestionable value as it stands; a good deal of it is based on frank admissions by the parties concerned: some of it, no doubt, requires further examination before it can be regarded as of evidential value. The

Council hopes that the Commission will undertake this examination with unflinching thoroughness and full publicity.

5. Besides the material already available to the public, there is presumably a mass of relevant evidence still undisclosed. The Council hopes that the evidence upon which the McKinnon Wood Committee in 1919 reached its conclusions will be made public; and that the Commission will insist on taking testimony on oath, wherever called for, and will require the production of all documents which may throw light on the "evil effects" alleged in the Covenant.

6. The Council believes it to be clear, from the evidence already available, that armament firms have accentuated the armament race by playing off one country against another and have prolonged wars by simultaneous arming of both belligerents; have sought to influence public opinion through the control of newspapers and by stimulating Press campaigns for increased armaments; have disseminated false reports concerning the military programmes of various countries; have attempted to bribe and influence Government officials both at home and abroad; have sent paid agents to seek by false propaganda to defeat the efforts of international conferences for disarmament and peace; and have derived profit through the arming of countries which might easily become enemies of their own country.

7. So long as the export of armaments for private profit continues, it is likely that the Governments of those countries in which armaments are manufactured and exported for private profit will generally desire that the export trade of the armament firms within their territory should be as large as possible, short of the point at which national security would be obviously and directly prejudiced. The United States Arm Inquiry has afforded many evidences of the desire of the governments to facilitate and promote armament sales in foreign countries by their nationals; and it has been indicated, by answer to a question in Parliament, that the British licensing system, valuable as it may be as a means of control in case of special need, does not have the effect of withholding more than a trifling proportion of the licences actually applied for.

The Council believes that so long as the governments can look upon the private armament manufacture within their borders as a convenient means of rapid expansion of arms production for themselves in time of crisis, there will be an objectionable tendency to stimulate the increased demand for armaments.

8. The Council and the associated organisations therefore consider it to be clearly established that the manufacture and sale of armaments for private profit, unregulated as it now is, is gravely injurious to the public interest.

II.—REMEDIES.

9. In submitting the following opinions as to the best practicable remedy in existing circumstances, the Council feels obliged to make clear its opinion that the trade in arms and its control must be seen as part of the wider problem of the prevention of war and the organisation of a peaceful and co-operative world order. The root of the matter lies in the

international anarchy—in the economic rivalries and unresolved political differences which lead to military preparations and the demand for arms whether manufactured by private enterprise or by the State. In its view a complete solution must therefore depend upon a genuine renunciation of war, the limitation, reduction and eventual abolition of armaments, and the development of a collective peace system based upon a universalised League of Nations.

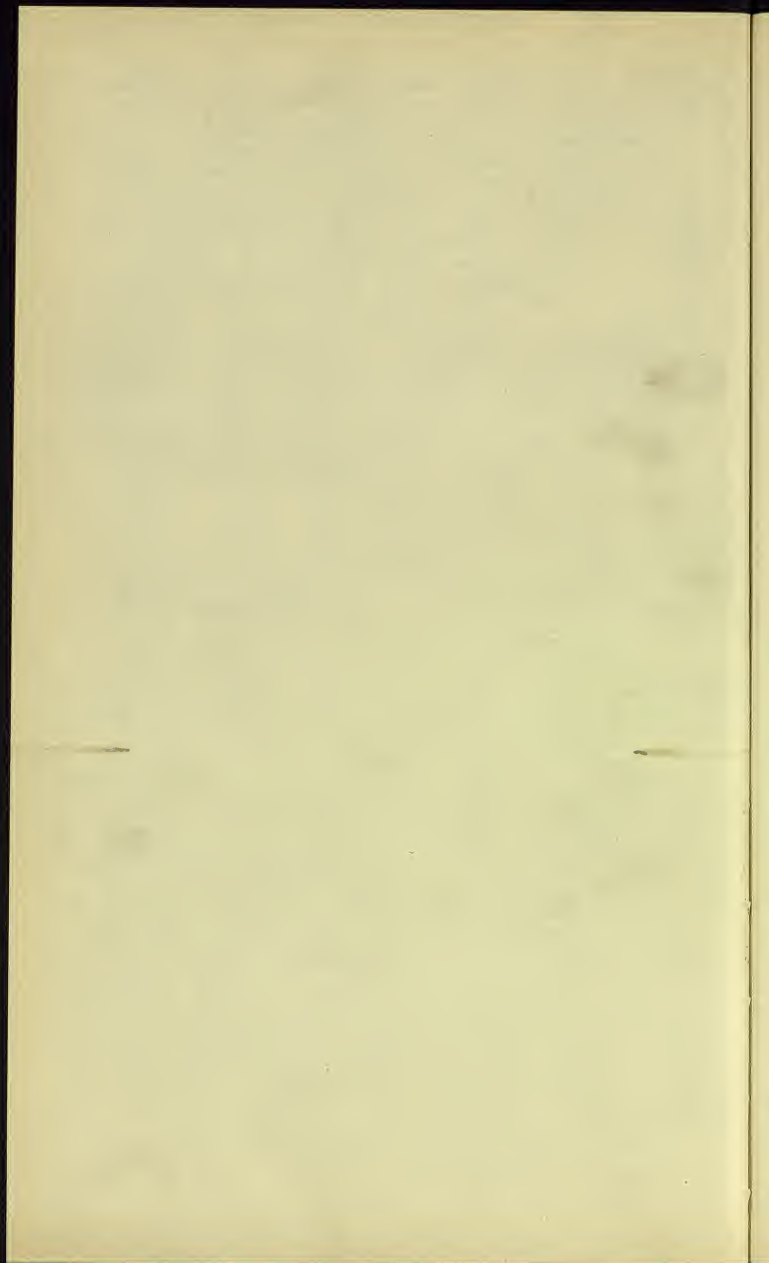
10. **LIMITATION OF ARMAMENTS.**—The Council is unanimously of opinion that no mere licensing system for exports, imports and manufacture of armaments, however thorough, will suffice to prevent the major evils of the arms trade, unless limits are fixed for national armaments by international agreement. If the government of each country that exports armaments subjects those exports to a licence system, each of those governments will remain anxious, as it now is, that its nationals shall get a lion's share of whatever business is available: each government will continue (as the British Government has done) to grant practically every licence applied for, as a matter of course; and the main evils inherent in the touting for orders in a market capable of infinite expansion will survive. A comprehensive limitation of armaments is required, as the frame within which any export of armaments must be regulated.

11. **INTERNATIONAL CONTROL.**—The Council considers that a comprehensive system of licensing for exports, imports and manufacture, with inspection on the spot and publicity for orders, as proposed in the American plan now before the Disarmament Conference, would be a substantial step in the right direction. The Council and its associated organisations have been active in urging H.M. Government to withdraw its opposition to the proposals for inspection on the spot and publicity for orders, which they regard as essential elements of the American plan and necessary for the promotion of confidence where confidence is lacking. The Council hopes that the Commission will recommend to the Government the signature and ratification of such a treaty.

12. **NATIONALISATION.**—But the Council considers that the step referred to above would be insufficient. It urges that the State should assume direct responsibility for completing the manufacture of all casualty-producing weapons (e.g., as defined in the American plan). The Council endorses the view of the French, Spanish, Polish and Danish Governments (Conf. D./CG/48, 3rd March, 1933) that the object of the measures taken should be "to reserve to the State that part of industrial production which renders it unfit for pacific purposes and destines it exclusively for military use."

13. To sum up. The Council and the associated organisations are convinced that the motive of private profit affords a stimulus to armament production which is socially injurious: that so long as national armaments are required, their supply should be limited and regulated under thorough supervision; and that the manufacture of casualty-producing weapons should be taken over by the State.

In the view of the signatory organisations, this suppression of manufacture by private enterprise should not wait upon a general agreement in favour of suppression, but should be carried out within a system of international supervision.



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

TAKEN BEFORE THE

3

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

THIRD DAY

THURSDAY, 23RD MAY, 1935

WITNESSES—

ON BEHALF OF THE COMMUNIST PARTY OF GREAT BRITAIN:—
Mr. HARRY POLLITT.

ON BEHALF OF THE BRITISH MOVEMENT AGAINST WAR AND
FASCISM:—
Mr. N. B. HUNTER.

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

THIRD DAY

Thursday, 23rd May, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Mr. HARRY POLLITT, representing the Central Committee of the Communist Party of Great Britain, called and examined.

524. *Chairman*: Are you Mr. Pollitt?

Mr. Pollitt: I am.

525. *Chairman*: And in what capacity are you coming here? Are you the secretary of the Party?

Mr. Pollitt: I am representing the Central Committee of the Communist Party.

526. *Chairman*: A statement* has been submitted on their behalf. Did you prepare that yourself.

Mr. Pollitt: I prepared that statement in conjunction with the other people with whom I am associated.

527. *Chairman*: Has it been submitted to any representative committee, or is it merely the opinion of those who drew it up?

Mr. Pollitt: It is the considered opinion of the Central Committee of the Communist Party.

528. *Chairman*: I have read it through carefully. The earlier part of it contains a good deal of information that we have received before from other sources, and there is a certain amount of it that I think one could charitably say was not very relevant to what we have to consider; and, of course, from your point of view the important part comes under the head of "Conclusions and immediate recommendations", under Section VII. Would you be content to start with that, or do you wish to read the whole of it,—because if you wish to read the whole of it I should not say that you are not to do it. It rests with you whether you wish to read the whole of it. If you do, I should not stop you.

Mr. Pollitt: No, I do not wish to read the whole of the memorandum, because I want to save the time of the Commission a little; but I would like to amplify certain parts of the memorandum in order to show that it is based, in our opinion, on fact. Therefore it would be a question of quoting each section, drawing the attention of the Commission to the paragraph, and then amplifying the conclusions that we draw there.

529. *Chairman*: Very well; that will be quite convenient. It does not mean a long speech on each amplification?

Mr. Pollitt: I will make it as brief as I possibly can.

530. *Chairman*: I would sooner you read it as it stands than read part of it and amplify it.

Mr. Pollitt: I was hoping to draw your attention, for instance to paragraph 4, and then submit one or two facts in relation to that paragraph. It will be quite short.

531. *Chairman*: Very well.

Mr. Pollitt: In connection with the first section, in paragraph 2, we want to direct the Commission's attention especially to that sentence immediately after the percentage of world export of arms, where it reads: "The heaviest responsibility for the evils of the world arms traffic thus rests with Britain", and to ask that attention shall be given to this because of the present situation of rising armaments at the moment when the Commission is sitting; and that is all that we wish to draw attention to on that first section.

In connection with the second section, which deals with the destination of British armaments exports for the furtherance of wars and counter-revolution, we wish to draw the attention of the Commission to the significance of our statement where we point out the big increase in armament exports to Japan between 1929 and 1932, and to that formulation where we say: "At the same time as the League of Nations was vainly endeavouring to check this flagrant violation of treaties and aggressive war of conquest, British armament manufacturers were supplying the means for it to be carried out."

Then in regard to the next paragraph, on China, we believe that it is also useful to draw the attention of the Commission to this later return that we have obtained of the export of loaded cartridges to China, and then I hope to show why this has taken place, in accordance with what we say in the memorandum, that "British arms exports to China showed a steep rise; arms were poured in to support this counter-revolutionary war." I therefore want to direct your attention to the following figures. In 1929 this country exported to China 393,000 loaded cartridges, in 1930 847,000 loaded cartridges, in 1931 2,458,000 loaded cartridges, in 1932 7,735,000 loaded cartridges, and in 1933—these are the last figures available—33,202,500 loaded cartridges; and our submission to the Commission is that this tremendous increase in exports of this form of armaments coincided with their use for the suppression of the Chinese Soviets and the Chinese Red Army.

In support of that contention I want to direct the attention of the Commission to this extract from the official *Army, Navy and Air Force Gazette* for 8th November, 1934, which is headed "British Tanks against Communists":—

"Four 6-ton tanks, each equipped with one 47 mm. gun and one machine gun, and four light amphibian tanks, each equipped with one machine gun, have been supplied by British manufacturers to China, and are being used for the first time against Communists in Canton, who are retreating to Szechwan, where they hope to join the bandit Hu Lung and his company of 100,000 men."

* Appendix I.

23 May, 1935.]

MR. HARRY POLLITT.

[Continued.]

532. *Chairman*: I did not quite gather what you said about British manufacture. Did it mention a name?

Mr. Pollitt: No, it does not mention the name; but I want to submit to the Commission that it might be well worth inquiring about when Vickers send their representative, because the type of tank that we can prove—as far as specifications are concerned—was sent, was this type of amphibian tank, a type that Vickers specialise in. I have not the slightest doubt that Sir Eustace d'Eyncourt could also have thrown a little light on this particular form of transaction. We are submitting that this is rather important corroboration of the fact to which we are drawing the Commission's attention in relation to the purpose of this export of armaments to China.

Then, with regard to the paragraph headed "South America," where we are dealing with the figures of exports of armaments to South America, I think that the Commission will be interested, too, in this further quotation, which we took from the *Aeroplane*, of 9th September, 1934:—

"Air firms are no less quick to seize their opportunities. One of the most important persons in South America in relation to the development of British aeronautical interests is Sir Henry Joseph Lynch, financial adviser to the Brazilian Government and managing director of Davis & Pullen, of Rio. He is also ex-President of the Chamber of Commerce of Brazil, and is generally regarded as being connected intimately with Rothschild interests."

The same paper, the *Aeroplane*, at a later date, 3rd October, 1934, then follows this up: An indication of the direction of British aeroplane exports is shown by a remark in the *Aeroplane*. This is the actual quotation:

"In spite of the revelations of the United States Government Inquiry into armament graft, we do not believe that in selling armaments to foreign nations American salesmen are able to beat our own, and the fact remains that one British manufacturer, at any rate, sold enough aeroplanes to the various South American nations to make a very big hole in the difference between the sales of American and British products. Therefore the natural assumption is that the excess of American sales over British sales must consist of passenger-carrying aeroplanes and motors and other equipment for them"—and not, thank Lynch, of arms planes.

Our submission here is that an official journal representing the interests of what I choose to term bombing-war interests is, first of all, showing how valuable it is for them that they have this important contact in South America, Sir Henry Joseph Lynch; secondly, that we can beat the American salesmen at their own game; and thirdly, that even when they get a little of our trade we are thanking Lynch that their trade is only passengers, and ours is for the production of war planes; and we believe that that is a quotation to which the Commission should give its attention.

Then in the paragraph which is headed "Germany," we say: "The figures of British arms exports to Germany are not available; but the active British participation in the re-arming of Germany, contrary to Versailles, is common knowledge," and then we make a statement; but we believe that the Commission ought seriously to consider the statement that was made in Parliament on Tuesday of this week in connection with this German re-armament, especially because of the debate in the House of Commons last night, and the fact that in our opinion, having armed Hitler, we are now using that as a pretext to embark on an unparalleled armaments race in this country. This is the question that was asked in the House on Tuesday night by Mr. Bevan. I will read the actual extract from Hansard:—

"*Mr. Aneurin Bevan* asked the President of the Board of Trade the amount and the value of nickel imported into Germany from Canada for the years 1933 and 1934, respectively, and for the first three months of 1935 as compared with the first quarters of 1933 and 1934, and the amount and value which was exported direct to Germany and exported via Rotterdam, respectively; and whether, in view of the large proportion of capital held by British nationals in the firms involved, he will consider taking steps, in conjunction with His Majesty's Government in Canada, to prevent the continued participation of British firms in the re-armament of Germany?

Mr. Runciman: As regards the first part of the question, I am circulating in the Official Report a statement giving such information as is available. I am not aware of the proportion of the capital of nickel-producing firms that is held by British subjects. For the rest I can only refer the hon. Member to the reply given to the hon. Member for Dumfries Burghs (Mr. Kirkwood) by my right hon. Friend the Lord Privy Seal on 14th May.

Mr. Cocks: Is the right hon. Gentleman aware that by refusing to take any steps in this direction he is playing into the hands of Herr Hitler?

Mr. Runciman: I am not aware of that."

The statement* (to save your time) is here, giving the actual figures, both so far as the volume is concerned and so far as the value of these exports of nickel is concerned. You understand and appreciate the important part that this plays in war material for Germany. The significance of it is, as I say, that even now, while this Commission is sitting, we are embarking upon this tremendous arms race, that we have put Hitler into the position he is in, and having put him there we use that as the pretext for launching upon this tremendous expansion in all forms of armaments.

533. *Chairman*: Before you pass from that, I was going to ask you a question about it. You refer to British exports of nickel to Germany?

Mr. Pollitt: Yes.

534. *Chairman*: I understand now you are referring really to exports from Canada?

Mr. Pollitt: Yes, but by firms the capital of which is Canadian and British, and exports which could not be carried out without permission of the National Government.

Finally, on the whole of that section, Section II, where we have tried to make our case that this export of armaments allowed by the National Government actually fomented war, and also is used for the suppression of working-class struggles, we think it is necessary to put before the Commission a further conclusion, and that is the fact that if British soldiers are once more called upon to take

* OFFICIAL REPORT, Tuesday, 21st May, 1935, Col. 165. Following is the statement:

STATEMENT showing the total quantity and value of crude and scrap nickel (and nickel coin) imported into Germany during the periods stated and recorded as of Canadian origin.

	100 kg.	1,000 R.M.
Year—		
1933	6,885	2,131
1934	11,037	3,441
January-March—		
1933	612	(a)
1934	3,893	1,312
1935	—	—

(a) Not available.

NOTE.—It is not possible to state the proportions imported direct and via Rotterdam, but a considerable proportion of the imports is not consigned direct from Canada to Germany.

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MR. HARRY POLLITT.

[Continued.]

part in a war, they are going to be slaughtered by the armaments and munitions produced by British firms. In this connection, Sir, I believe that it would be useful to draw your attention to the last meeting of Vickers, where even a military gentleman protested against the way that British armaments were used for the slaughter of British soldiers in the Dardanelles campaign. Major Marston said:

"I do not want to put any questions which the Directors might feel it inexpedient to answer. On the other hand, like our Chairman, I am an ex-soldier, and this is a point which particularly affects soldiers. You, Mr. Chairman, were concerned in Gallipoli. Although of course, you did not know it at the time, you must have learnt since that our men out there were being killed by guns and shells manufactured by the company over which you now preside."

We want to draw the Commission's attention to the fact that Britain, as the biggest exporter of armaments in the world, is exporting armaments that quite conceivably will one day be used against hundreds of thousands of British workers on the same terrible scale as in the war in the Dardanelles.

In regard to Section III—"British Government Complicity in the Operations of the Armament Trusts"—we make one or two statements for which the Commission will quite rightly demand further justification. In paragraph 7 we say: "The distinction between the 'private' armaments trusts and the Government and state apparatus is a formal one. The trusts are 'private' in so far as the profits of the war-trading are appropriated by the capitalist class in their individual capacity as shareholders. But their operations are conducted in complete collaboration with the Government and state apparatus, with which they are closely interlocked."

In proof of that, I draw your attention to the speech made by Sir Herbert Lawrence, the chairman of Vickers, at the meeting held on 2nd April, 1935, where he said: "Armament firms in this country carry on a legitimate business under strict control by Government departments", and to the meeting of Imperial Chemical Industries on the 1st May this year, when a shareholder asked if it were possible to separate the armament from the other business of the company, to which Sir Harry McGowan, the chairman, replied: "No, I am afraid it is impossible. We are in the hands of the Government."

Then in paragraph 8, in Section III, we are drawing your attention to the close interlocking of the armament trusts and the state, as expressed more clearly in the character of the personnel, particularly of Vickers Armstrong and of the I.C.I.; and in the support of that contention we draw your attention to the following directors and their past connections with the Government.

General Sir Herbert Lawrence has been chairman of Vickers, Limited, since 1926. He was formerly the Chief of Staff at the Headquarters of the British Government in France from January, 1918. After a distinguished military career in South Africa, in Egypt, in France and in the Dardanelles he left the army on the retired pay list in 1922.

Sir Mark Webster Jenkinson was the Controller of the Department of Factory Audit and Costs at the Ministry of Munitions, and Chief Liquidator of Contracts at the Ministry of Munitions after the war. He also is a director of Vickers now.

Another present director of Vickers, General Sir J. F. Noel Birch, after a long military career, was Artillery Officer to the Commander-in-Chief in France from 1916 to 1919. He was Director of Remounts, 1920-1921, Director-General of the Territorial Army, 1921 to 1923, Master-General of the Ordnance and Member of the Army Council, 1923 to 1927.

Sir J. A. Cooper, a further director of Vickers, was the Principal in charge of Raw Materials Finance

at the War Office from 1917 to 1919, and then became the Director of Raw Materials Finance at the Ministry of Munitions from 1919 to 1921.

Sir A. G. Hadcock was the Associate Member of the Ordnance Committee. Several other directors have had previous military experience.

Now, Sir, we submit to you that it may be all very well for public consumption that these gentlemen have now ceased all their government activities, but I think all of us know sufficient of the ways of the world, and personal and social relationships, to appreciate the point that these directors are only of service to Vickers precisely because of their government connections, their government experience, and in knowing that their participation in the boards of the armament trusts is the very best way to get for the particular firms they are identified with any government contracts of a war character that may be going.

535. *Chairman*: Would not you include in their experience their practical experience?

Mr. Pollitt: I would put far higher than their practical experience their personal and political connections, Sir, with the government ensuring Vickers the rate of profits that it would desire.

Then I think the Commission ought to have, in the same connection, their attention drawn to Major General Guy Dawnay. This gentleman is the chairman of Armstrong Whitworth Securities, a company very closely allied with Vickers. He also has had big government experience; and, Sir, we also take the liberty of pointing out that this gentleman's brother happens to be at the moment in one of the most important positions in the British Broadcasting Corporation. I leave the Commission to draw the conclusion from that that I am sure they will do.

Now, in furtherance of the same point that we are making, take the Imperial Chemical Industries. We quite frankly take our stand, Sir, on this position, that whilst this is a combine that can produce everything, from the raw material to make silk stockings and agricultural fertilisers, its chief importance, especially because of the new phase with which modern wars are conducted, is that it represents the most powerful combination in this country that can give the government the guarantee of the necessary supply of poison gas, high explosives, and all the new forms with which modern war is being conducted, and is being contemplated to be conducted in the future. We would hesitate, from our point of view, to make any sharp distinction in regard to the importance of the I.C.I. as a war industry as distinct from the role that is played by Vickers.

In order to substantiate again the contention that we are making in paragraph 8, we draw the attention of the Commission to the following: The Marquess of Reading, one of the most distinguished gentlemen in this country, is one of the directors of the I.C.I. As you know, Sir, he has been Viceroy of India, he has occupied many important government positions, and only as recently as 1931 was the Foreign Secretary to the first National Government. Sir George Christopher Clayton, the Conservative M.P. for Widnes, is also a director of this company, and Mr. W. H. Coates is a director of this company, and he, too, was in the War Office from 1907 to 1904. He was in the Inland Revenue Department from 1904 to 1919, and he was the Director of Statistics and Intelligence in the same Department from 1919 to 1925. But the chief thing that we want to draw your attention to in support of our contention is the position of Lord Weir, who occupied a very important role in this country during the last war, who is a director of the I.C.I. at the present time, who has had very close government connections and who, we learn from this morning's papers, it is contemplated shall be given a further important job in connection with the new phase of aerial warfare.

Now, in connection with paragraph 9 we wish to emphasise the way that the licensing system enables a government or the private trusts to supply munitions of war to both sides. I do not think

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MR. HARRY POLLITT.

[Continued.]

any member of your Commission would doubt the fact that this terrible war in Bolivia and Paraguay would have been over long before now if this country and America had not been impartially distributing their favours to both sides. Similarly, in connection with this long-drawn-out war that is taking place in China—and, Sir, I am not now referring to the war upon the Chinese Red Army; I am referring to the continual skirmishes and battles that take place between the Chinese Nationalist Government and the Japanese Government. This country, through its export licensing system, undoubtedly is in a position to supply both sides.

But, Sir, there is another conclusion to which we wish to draw your attention, and it is this: that even the method of the export licensing system does not allow the full story to be told of British armament firms' real participation in equipping other nations for war. What I mean by that is this, that the arms trust's international ramifications are of such a character that what they perhaps could not get across from Britain direct, without mobilising a certain volume of public opinion against it, can be supplied by their subsidiaries in other countries, and the real question of the export of war munitions is thus lost. Secondly, Sir, it has another very important fact so far as we are concerned, and that is this, that it will be within your knowledge that in 1920 London dockers refused to transport munitions to Poland for use against Russia at that time. The evasions that they can get under the present system of export licensing could, in certain political contingencies, allow the arms trusts to supply nations abroad where their subsidiaries are, and avoid the possibility of an embargo being put upon that export as a result of the development of a militant anti-war movement.

Now in regard to Section IV, which is headed "Complicity of the entire Capitalist Class in the Arms Traffic," we direct your attention to the following first stages. The vast armaments trusts, with their capital running into many tens of millions of pounds, are representative of finance capital as a whole, and are closely interlocked with the entire capitalist structure. Their shareholding lists run through the entire body of the governing class, financiers and politicians, lords and ladies, generals—

536. *Chairman:* Do you think you need add to this? I mean, have not you stated in paragraph 10 all that there is to be said about this?

Mr. Pollitt: I believe that I have one or two more facts to bring to your attention.

537. *Chairman:* Very well.

Mr. Pollitt: And in connection with this section we want to make three points and to try to prove them. First, that the shareholders from all sections of the capitalist class benefit from the armaments industry, and not only those directly concerned with particular armament firms. Secondly, that all capitalist enterprises benefit by war activity and war preparation. Thirdly, that although apparently armaments control is widely scattered, bringing certain profits, the real cream goes to the big banks and trusts who control policy; and in substantiation of this we draw your attention to the following. This is an extract—I will not read it all, but we will hand it in—from the *Sunday Times* financial page, May 15, 1935. It is headed "The Outlook", and it goes on to say:—

"But instead of viewing such a prospect with dismay"—this is the increase of the Air Force—"as an unprofitable addition to the national debt, the stock exchange prefers to look upon the bright side, and the public show a keen appetite for the shares of companies likely to receive government orders. Illogical though it may seem, this prospect of heavy expenditure on armaments has given a pronounced stimulus to various industries. . . . What concerns the investor at the moment is that the warlike atmosphere of Europe is providing a

stimulus in many branches of industry. It may even help to explain the re-awakening of interest in oil shares, though the excellent results of the Royal Dutch Shell group provide the more immediate reason for the buying."

Here is, in our opinion, proof of our argument that the whole of capitalistic enterprises benefit when there is a stimulus going on for war preparation.

In regard to our further contention that the entire capitalist class is involved, we wish to draw your attention to the following, particularly in connection with paragraph 10 and paragraph 11. We believe that the complicity of the entire capitalist class is indicated by the fact that all sections of the capitalist industry, not just the arms firms, benefit from war, and that this is confirmed by the nature of those who really control the industry. The control, though not necessarily the ownership, of the leading firms engaged in the production of armaments is monopolised in very few hands, and I have put in this chart* to the Commission—we have other copies available—in which it is clearly shown how that control over the whole of the industries rests very largely—

538. *Chairman:* I think we have a copy of this, or substantially the same as this, already?

Mr. Pollitt: Well, there you see, Sir, how the actual control is in reality in the hands of one or two dominant groups, and very quickly I would like in this connection to indicate one or two actual facts. For example, Armstrong Whitworth Securities Limited, we affirm, is controlled by the Bank of England. We could give further details if that was necessary. Similarly with Vickers Armstrong, extremely important financial interests are found in and about Vickers Armstrong. In addition to the large shareholdings of Vickers, Limited and Armstrong Whitworth Securities are found A. W. Consolidated Stock Trust, Limited, with 1,000,000 "B" Preference Shares of £1 each. This concern is controlled by the banking firm of Baring Brothers. On April 5th, 1934—this is the last available file at Somerset House—the banking house of Glyn Mills owned, either in its own right or as a proxy for Vickers, Limited, its clients, 2,000,000 "B" Preference, 1,500,000 "B" Preference and 5,000,000 Ordinary shares of £1.

In this connection, we would like to direct the attention of the Commission to what we consider a real example of speculation on the profits that a war will bring. It is the transaction carried out by the Sun Insurance Company in connection with Vickers Armstrong. We say that the Sun Insurance Company is closely interested financially in this concern. At its formation, late in 1927, Vickers Armstrong took out an insurance policy with the Sun Insurance Company by which, if profits in any year during the five years ending December 31st, 1932, did not amount to £900,000, a contribution from the Sun Insurance Company would be made not exceeding £200,000. Since profits in the years 1928 to 1932 never got anywhere near £900,000, the Sun Insurance Company handed over £1,000,000 during the five years. The terms for the repayment of this are rather remarkable. The Sun Insurance Company has at first to be repaid by the appropriation of 40 per cent. of profits in excess of £900,000. Second, the sum repaid is limited to the original capital sum lent, plus 6 per cent. Third, if the necessary profits are not made by 1947, the policy lapses, and the Sun Insurance Company loses its £1,000,000. And we do not believe, Sir, that there is any insurance company in the world that puts up £1,000,000 in the hope that it is going to lose it. We believe that the interests of the banking firms with the armaments firms, and the political ramifications which follow it, made the directors of the Sun Insurance Company feel absolutely certain that by 1947 they would more than have got back what they had invested.

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[Continued.]

Similarly, in regard to the firm of Cammell Laird. This firm is controlled by the Law Debenture Corporation, which, as trustee of the first and third mortgage debenture stock, holds one majority share in the company, and can outvote all the other 3,829,717 5s. ordinary shares; so that, Sir, if any pacifists or clergymen get their consciences aroused and they go to this meeting to demand a change of policy, the Law Debenture Corporation has this one vote which puts the whole of these little 5s. shares immediately into the background. We believe that this, too, is an aspect which the Commission ought to consider.

Similarly with the firm of Beardmore. This company is likewise controlled by the Law Debenture Corporation. There is a committee of three, nominated by it, which holds ten majority ordinary shares, which confer the right to outvote 1,014,790 shares held by Lord Invernairn and 1,500,000 shares held by his wife. This control remains until the first mortgage and "A" income debenture stocks are paid off. Now, who are behind this ownership of the majority ordinary shares? Basil G. Catterns and another, who are closely allied with the Bank of England, Lloyds Bank, the Glasgow Office of the Royal Bank of Scotland—

539. *Chairman*: Are not you over-elaborating this?

Mr. Pollitt: I have finished. I have only one more.

540. *Chairman*: I am glad to hear it. Very well; finish.

Mr. Pollitt: And the National Bank of Scotland.

Now, in relation to the assertion that we make in the memorandum regarding the connection which exists between the front bench politicians, the upper ranges of the bureaucracy, of the judiciary, of the fighting services, and the trust, we noted that the shares of Sir John Gilmour were brought out at yesterday's sitting, but we believe also that it is worth recording that Mr. Neville Chamberlain, the Chancellor of the Exchequer, holds 833 preference shares and 5,414 ordinary shares in the I.C.I., that, as typical of the aristocracy, Prince Arthur of Connaught has 3,000 5 per cent. preference shares in Vickers; that the Earl of—

541. *Chairman*: You know, this is really wearisome, because you have made your point, have you not?

Mr. Pollitt: But, Sir, we have made it in a more generalised form there. This is particularising. The Earl of Dysart has 40,000 ordinary shares in Vickers. Representing the Church, the Bishop of St. Andrew's has 2,100 ordinary and preference shares in Imperial Chemical Industries. Barrow Cadbury, a leading Quaker—it shows you how far it goes—also owns 30,875 preference shares in I.C.I.—

542. *Chairman*: Really, I think I must intervene. I think you are going further than is really necessary to support your contention. Perhaps you will take a hint.

Mr. Pollitt: If I may conclude on it, I think that in this connection the position of the Recorder of Bristol, and Sir John Eldon Bankes, who holds 1,000 preference and 765 ordinary and 170 deferred shares in Imperial Chemical Industries, is worth noting. I will not go into it, because it is all here, but we can prove on the basis of the documents how the fighting services and how the upper bureaucracy are intimately associated with money invested in firms either directly or closely allied to the production of war.

This table*, Sir—I do not know whether the Commission has seen it—puts in a striking form the loss of profits that has taken place between Christmas, 1934—I hope there is no significance about the date—and May 17, 1935. We have put copies of that chart in in order to show how the whole of the capitalist class in general is benefiting from this.

Then just one or two short quotations to show how the armament firms are interested in defeating any-

thing that tends to the limitation or the reduction of armaments. If we go back for a number of years, which I do not propose to do, we notice that apprehension increases, as the movement for peace tends to get stronger. For example, Sir Herbert Lawrence, the chairman of Vickers, said at the 1927 meeting: "It is no good disguising the fact that we are an armament firm depending on armament orders. If there is to be a further limitation of armaments the future of the armament business of Vickers, like that of every other armament firm in the country, may become difficult." In 1928 he was stressing the point: "Our interests through Vickers Armstrong are mainly in connection with armaments," and then went on: "The proposals for naval disarmament, if successful, will naturally have an adverse effect on the trading results of Vickers Armstrong, should any material reduction result."

543. *Chairman*: Yes; but is not that quite obvious? Is it necessary to call attention to the fact that if the demand for a particular thing that a firm makes decreases, the profits will decrease?

Mr. Pollitt: I respectfully submit to you, Sir, that as a result of what was brought out at the American Inquiry, where it was established that the armament firms had emissaries at Geneva actively campaigning against—

544. *Chairman*: That is another point altogether.

Mr. Pollitt: It may be another point in that respect, but it may also be true that our armament firms do the same thing.

545. *Chairman*: Very well.

Mr. Pollitt: Then in connection with the relationships which exist between the trusts and the defence services—Sir Herbert Lawrence is speaking in 1934: "Our relations with the three defence services continue to be satisfactory, and, though as an armament firm we are the subject of opprobrium in certain quarters, we claim that so long as our products are necessary for the defence of the Empire we are rendering a national service." Sir Robert Hadfield, the chairman of Hadfields, Limited, in 1928 said: "In this changing world it is highly desirable not to relax our efforts. Notwithstanding all the talks about League of Nations and peace propaganda, which are all very well in their way, we should bear in mind the old adage: Keep your powder dry." At this same meeting Sir Robert Hadfield congratulated Mr. Bridgeman, who at that time I believe was connected with the Admiralty, on the stand that he had taken in this connection. One final quotation from Sir Robert Hadfield is the one in 1933, where he told the shareholders: "It is to be hoped that before long there will be better things in store for us." He openly paid a tribute to the friendly relations between himself and the newly-appointed First Sea Lord, Sir Ernie Chatfield, K.C.B., K.C.M.G. This is what Sir Robert Hadfield said: "I now come to the speech recently delivered by the new and very able First Sea Lord. The associations of myself and Major Clark with Admiral Chatfield for a considerable period of time have been unusually cordial, and he has on many occasions smoothed down obstacles in our path. Our country is indeed fortunate in having so able a chief at the head of our senior Service, which forms the backbone of our Empire defence, the British Navy." I think that those few facts are ample confirmation of the conclusions that we have tried to draw.

May I, however, take the liberty, Sir, of directing your attention to the second paragraph of paragraph 11, where we make a certain reference to the *Times*? We believe that this ought to be brought out here in view of the role that the *Times* plays in the national life of this country. You will remember, Sir, that it was raised at the Vickers meeting in 1934, when one of the shareholders asked a question about this. He said: "Mr. Chairman, we have been greatly interested in your assurance that Messrs. Vickers have never

* Appendix III.

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[Continued.]

had any part in the influencing of newspapers, but I should like to ask whether you are aware that several years after the war Mr. Bryce, a nephew of Lord Bryce, was simultaneously the *Times* correspondent in Belgrade and business agent for Messrs. Vickers. He failed to get enough order for Vickers, and his appointment lapsed, and then his appointment with the *Times* lapsed." And I have two or three other quotations to show you where, on various occasions, men who have been sales merchants for armament trusts, that appointment has coincided with the appointment that they have held for the *Times*. Therefore, Sir, we draw your attention to what we say here—the significance of this great newspaper not printing the same reports of Vickers' annual meeting on important questions that subsequently appear in other sections of the Press.

On the section which deals with the responsibility of the present National Government for blocking adequate inquiry into the arms traffic, I do not want to say very much—

546. *Chairman*: I think you had better not; but are you really suggesting paragraph 15 as a matter which we ought seriously to consider: "We consider that the Commission in its report should express the sharpest protest against this restriction of its scope and powers." Do you think it rests with a Royal Commission to complain of the terms after they have accepted the appointment?

Mr. Pollitt: I consider, Sir, that in this grave eve-of-war situation, anything that you can do, despite all the attempts of the Government to limit the scope of this Commission, should be done by you in the interests of humanity as a whole; and we put it forward most seriously and earnestly.

547. *Chairman*: Very well.

Mr. Pollitt: In regard to this question, I only want to substantiate the fourth paragraph in paragraph 13, where we say: "The National Government has sought to block by every means in its power the investigation of the American Arms Inquiry, and has exerted direct diplomatic pressure to prevent important documents being brought before the inquiry."

I only want to put the following two points. In the House of Commons, on 11th February this year, Mr. Dobbie asked the Secretary of State for Foreign Affairs whether any official protests had been made to the United States Government concerning any of the evidence given at the United States Senate Arms Inquiry; if so, when were such protests made; and what was their nature. Sir John Simon replied: "I presume that the hon. Member in referring to official protests is inquiring whether any such protests have been made by His Majesty's Government. On this assumption the answer is: No. The only exception was with reference to a ridiculous story, to which I referred in an earlier debate, which brought in the name of His Majesty the King." And now, Sir, I ask you to listen to this extract from the *Financial Times* of 30th April of this year, which shows a direct contradiction between the statement in the House and the statement made in such an important newspaper as the *Financial Times*.

548. *Chairman*: But, really, you cannot ask us to accept statements in all the newspapers as statements of actual fact, can you? You do not agree with the statements in a great many newspapers, do you?

Mr. Pollitt: I do my best, Sir, to counteract their effect as often as possible; but when it suits our purpose, and I think here to-day, we have to recognise the appropriateness of this particular quotation from the *Financial Times*. It is headed: "The United States Arms Inquiry. Committee to avoid complications":

"The representations made by the British Ambassador against the submission to the Senate Munitions Committee of confidential correspondence between American banking concerns and the British Government has here had effect. Senator Nye, the Chairman of the Committee, announced

to-day that his Committee had agreed, after a conference at the White House with President Roosevelt and Mr. Hull, Secretary of State, to avoid any action likely to raise complications with foreign governments in connection with the investigations into the war-time files of J. P. Morgan & Company. It is understood that the investigators were summoned to the White House as a result of the informal representations made by the British Ambassador yesterday."

We are putting that in as substantiation, from a hostile source, of the allegation contained in our memorandum.

On the section that deals with the "Ineffectiveness of current reform proposals for a state monopoly of the armaments industry as a solution," we only wish to emphasise that in our conclusions we are coming forward with certain proposals which we believe are practicable, and could be operated, if there were a genuine desire to abolish the worst features of the armament trade. It is not necessary, therefore, to go into this section on the ineffectiveness of the current reform proposals; and I will come straight to our conclusions.

What has been the aim, Sir, of our memorandum? We have tried to show, from the point of view of the Communist Party—and we do not necessarily expect the Commission to agree with that point of view—that war is inseparable from capitalism; but also another important thing, and that is that war is not only terrible, but is a terribly profitable thing, and that we do not believe that the problems which are associated with the armaments industry can be abolished until the present system is abolished; but that is outside your terms of reference, and therefore we make certain proposals that have for their objective the exercising of a more effective control over the armaments traffic, and at the same time would help the working class fight against everything associated with the cause of war.

What is it that we propose? We propose the prohibition of private manufacture and sale of armaments and munitions, and we do not do it on the ground that this will be a less evil to the working masses, but that by the prohibition of private manufacture the whole of the trade could be concentrated, the whole of the fight against war could be concentrated against the government, which would then be fully responsible for whatever productivity was taking place in armaments industries. In that connection, we give very great importance to our proposal for full publicity of all state construction of armaments and munitions.

No doubt, Sir, you would read Mr. Baldwin's speech in the House last night, where he said: "If only we knew what was going on behind the scenes!" We are in hearty endorsement of that, and especially if we only knew what went on behind the armament scenes. If every contract had to be tabulated, if we knew exactly what it was for, then the whole of the people who are against war would be in a more effective position to fight it. We are proposing the complete abolition of the export licensing system, and a complete ban on the export of all armaments and munitions.

Finally, we are proposing heavy penalties for any default on the above provisions, and the establishment of elected workers' control committees in the armament factories, and a central workers' control commission, elected from the working class organisations, with full powers of inspection and calling for documents, to check execution of these provisions and issue periodical reports. We believe, Sir, that this trade is so terrible that there are no penalties that are too drastic; and for our part we would welcome a recommendation on the part of the Commission that those who violated the provisions that were finally agreed upon—that there should be no penalty that was too drastic to impose upon that violation.

Now, Sir, I should like to draw your attention—it is a rough analogy, but we find it, I believe, to

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give an important clue to how this proposal practically could be operated. In the minefields of this country there is a custom for men in a pit to have the right to elect what is called a pit inspector. This system functions better in Fifeshire than in any other part of the British coalfield. The men elect this pit inspector. He then has the task of examining a particular group of mines, going into the whole question of their safety and making recommendations to the management, which must be carried out. After each inspection he must report to the miners in that pit, on what he has found, and what he has proposed. Now, it is only rough, but it is some such principle that we believe, if it was applied to the armaments industry under working-class control—and I make it clear that the control we have in mind is not a control exercised by the trade union leaders associated with the Trade Union Congress, that these workers' control representatives are elected persons actually working in the factories and elected by their mates in the factories, and their election subsequently endorsed by the trade union branches to which they belong, and these committees would naturally have to have the fullest facility for going into the source of every order, for finding out where the order was for, full examination into the books in order that there would be no opportunity of pulling wool over the eyes of this Commission.

These, Sir, in brief, are the points of view of the Communist Party, the proposals that we have to make, and we are sure that they will receive the very serious consideration of this Commission.

I should explain finally that there are just one or two corrections that have to be made in some of the figures in our memorandum, but they do not alter our political argument, and we can hand in those corrections to the Secretary of the Commission at a later stage.

549. *Chairman*: There are only one or two questions I want to ask you, to be quite sure that I understand what it is you are putting forward. I have no questions at all to ask about your suggestions about the prohibition of private manufacture and sale of armaments and munitions; they appear quite plain; but is this a correct summary of the substance of your argument? May I put it to you? First of all, under head VII, paragraph 20, just the last few lines of that paragraph, you say: "The evils of the armaments traffic can only be overcome by the overthrow of capitalism and the establishment of the world socialist society, in which armaments will no longer be necessary and production will be organised for use, not profit." That is your view of the only possible real cure, is it?

(The Witness withdrew.)

Mr. NEIL BARCLAY HUNTER, representing the British Movement against War and Fascism, called and examined.

556. *Chairman*: Mr. Hunter, will you tell me what your position is in reference to this organisation?

Mr. Hunter: I am the honorary secretary.

557. *Chairman*: And have you prepared this statement* yourself?

Mr. Hunter: In conjunction with the executive committee of the organisation.

558. *Chairman*: And I ask you the same question as I asked the last witness: Has it been considered by any representative committee, or is it merely the views of those who prepared it, and who consider that it represents the views of the organisation?

Mr. Hunter: We have circulated it to all our branches and affiliated organisations, which number well over 200, and asked them for comments and so forth. Time has been short, but we have

Mr. Pollitt: Absolutely.

550. *Chairman*: Well, at any rate, I suppose you would agree with me that it is not a cure that is likely to be immediately effective?

Mr. Pollitt: The more's the pity!

551. *Chairman*: In paragraph 17, under head VI, I want to be quite sure that I understand this. At about the last eight lines you say: "Finally, if the State Armaments Monopoly were to take over the business of the export of armaments, this would enormously increase the power of pressure on foreign governments. Thus the establishment of a State Armaments Monopoly would not necessarily in itself mean any step forward to removing the existing evils of the arms traffic, but might mean an intensification of those evils." Now, is it correct to say that in your view, so long as the capitalist system continues, nationalising manufacture and trade in arms is not likely to improve, but on the contrary is likely rather to aggravate existing evils?

Mr. Pollitt: No, our view is put in the memorandum that the traffic as a whole is wrong, that the state control is a lesser evil provided that it is accompanied by the prohibition of any exports of armaments and by workers' control commissions as compared to the armaments industry being vested in private ownership like Vickers.

552. *Chairman*: Very well. Now that explains that. Then under head III, in the last paragraph under the heading you say: "Thus direct responsibility for every operation of the nominally 'private' British arms traffic rests with the British Government." In your opinion, is it the fact that really the responsibility for what is going on now, in reference to the manufacture and export of arms in this country, rests with the Government rather than with the private firms?

Mr. Pollitt: Rests with the Government, which alone has the power to give the export licences; and the armament manufacturers, in their various speeches, make reference to that fact.

553. *Chairman*: Very well. I think that is all I have to ask you. Does anybody wish to ask any question?

554. *Dame Rachel Crowley*: I have listened with great interest to Mr. Pollitt's memorandum, and the way in which he has presented his case. I do not think I have any questions to ask, because I am still very much sunk in the memorandum itself, which I hope to read again carefully in the light of what Mr. Pollitt has said to-day.

555. *Chairman*: Are there any further questions? Thank you, Mr. Pollitt.

not received any expressions of dissociation from the views set forward there, and we have confidence that, on the whole, they represent the views which the organisation as a whole—it is a very loose one—would like to put before the Commission.

559. *Chairman*: Would you like to read it?

Mr. Hunter: As the Commission already have it, perhaps, if the Commission's time is short, there is no necessity for me to read it again, particularly as a great deal of it has already been covered by submissions of other organisations in the past, such as Mr. Arnold-Forster's statement yesterday, which, of course, went into much more detail in trying to substantiate some of the points on which we base our case; but in connection with the first point that we make, that there is at the present moment such a great loss of life going on in the world, we feel that the body of opinion that we represent regards this as perhaps one of the most vital factors

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[Continued.]

to be taken into consideration, that there is so much slaughter actually going on at the present moment. In connection with that, if I may just read a few lines from an article which appeared in the *Times* on the 21st May, only a day or two ago, I think it might be helpful to the Commission in realising what the position is to-day. It says:

"The Bolivian Indian cannot be expected to have his country's cause at heart, and he is no match for the Paraguayan soldier in courage and endurance. The Bolivian army has undergone great sufferings. It has generally numbered about 80,000 men, but it is a constantly changing 80,000. Some 50,000 have died since the beginning of the war, and over 20,000 Bolivians are now prisoners in Asuncion. The reasons for these enormous losses, which are proportionately more severe than any encountered by armies in the Great War, are not due to any new inventions or improvements in mechanised or chemical warfare, for the Chaco war is essentially a war of infantry, acting in most cases without support from tanks, artillery, or aircraft. But disease claims at least as many victims as enemy bullets, while a sinister insight into the nature of the war is the small number of wounded compared with killed. Medical arrangements are primitive, transport is difficult, and wounded are easily lost in the thick forests."

Well, Sir, much evidence has already been produced to the Commission indicating that the British armament firms are very much concerned in this war, and we feel that we should also especially emphasise the fact of the terrible nature of the war that is going on there, and, of course, other wars in other parts of the world at the present time.

But I was going to ask, Sir, if you would consent to my explaining very briefly why it is that in contrast to the National Peace Council and other organisations which have recommended control rather than prohibition, we feel that the circumstances of the case now suggest, first of all, that prohibition of the private manufacture of and trade in arms is necessary, and, secondly, that there is no inherent difficulty in bringing it about. May I elaborate that point, as being the one to which we attach special importance?

560. *Chairman:* Yes.

Mr. Hunter: Well, Sir, our movement came into existence as a result of the events in 1931 and 1932 in the Far East, the invasion of Manchuria by Japan and the attack on Shanghai in the next spring, when it was felt that the evidence was unmistakable that the world was entering into a new period in history, when the question of peace and war was a matter of very great urgency. We felt that we were very much concerned to see to it that we have full liberty, in this country, to put forward our view that, if war cannot be prevented, then sooner or later this country, like other countries, is threatened with what really amounts to a form of race suicide.

This view that war is a form of race suicide is, of course, as we know, in this country very generally accepted—still not universally accepted, perhaps, but very generally accepted. But we are very well aware that that is not so in other countries, and that what I might call the opposing view, which was perhaps expressed most succinctly by Signor Mussolini in a short phrase, that "perpetual peace negatives the fundamental virtues of mankind, which are revealed only on the bloodstained battlefield in the full light of the sun"—that opposed point of view is, in many parts of Europe at present, one which cannot be controverted; there is no legal possibility of controverting it. We think the Commission should, if they can, consider the position that we now have in Germany, another country which has had to deal with the question of the existence of a large private trade in armaments such as we have in this country, where to-day we have the position that such a point of

view as I am expressing to the Commission now and represent, is not allowed to be put forward at all.

We find that that position coincides with the existence of a form of government in which you have a supreme economic council, I believe composed of nine members, of whom one represents the great potash industry. The exact connection of the potash industry with war production I am not absolutely clear on, but I am told that it is a fairly considerable one. But more important, perhaps, another member of the supreme economic council, Dr. Karl Bosch, is a director of the German Dye Trust, and we would like to draw the Commission's attention to the fact that this, in a sense, is the parallel organisation in Germany to Imperial Chemical Industries, to which so many references have been made before the Commission; and, further, that a third member of this small junta which controls the complete economic life of the country, and therefore, we may assume, to a very large extent the political life too, is the head of the great armaments firm of Krupp—Herr Krupp von Bohlen.

Therefore, we feel that if it is the case that in this country there are already very powerful armaments interests, and if it is the case that the armament industry is growing, that more of the total business transacted in the country is going the way of the armament firms—and I hope the Commission will not require any further evidence that that is the fact after what has already been said—then we feel it must be concerned to see whether, in this country, unless something can be done to check the economic and political influence which can be exercised by armament firms, we may not eventually find ourselves in the same position that the German people find themselves to-day.

Now, why we feel that the control of armaments may not be sufficient to preclude this happening is, once again, because we have seen what has happened in Germany, where, since the war, there was, owing to the Versailles Treaty, the most complete and absolute control of the private manufacture of armaments that, I suppose, it would be possible to conceive; and yet we are faced by the fact that, after a number of years of such control, you still have the position where, in the end, it is not the public who control the armament firms but the armament firms which, as we would like to submit, are now controlling the public. We therefore feel that the Commission—if it is satisfied that the armament firms in this country are already, to-day, in a position where they are able to exercise very considerable influence on the course of public affairs, and can be expected, owing to the present course of international affairs, to increase that influence, because the foundations of the influence of their increased business would give them still more power—would like to go very thoroughly into the question whether it is not possible, if public opinion really realises the facts, to recommend that Parliament should pass an Act of Parliament completely prohibiting the private manufacture of and trade in arms.

We realise, of course, that this is no simple matter, and that it is quite conceivable that a single Act of Parliament would not at one fell swoop shut up every possible loophole of any British national engaging in the armaments traffic, but we feel that that is not in itself a final answer to our case, because when it has been a question of prohibiting other undesirable forms of traffic in the past the same considerations have applied. There was the case of the abolition, in which we are always glad to think this country took, if not the initiative, a very early initiative, of the trade in slaves. We know that that was not complete, that still to-day in many parts of the British Empire slavery still continues, but nevertheless we feel that the first Act of Parliament that was passed at the end of the 18th century did strike an enormous blow at what had then come to be regarded as an infamous traffic; and we feel, therefore, that it would not be beyond the capacity of the Commission to make a recommendation as to

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[Continued.]

the possible character of legislation which would very considerably curb the power of armament firms in this country to increase the degree to which they influence public opinion in this country in the direction of increasing the production and sale of the weapons of destruction.

I think, Sir, that that is the principal point we would like to bring forward, because we do feel that previous witnesses have already very fully gone into the available facts on which the arguments we bring forward have been raised.

561. *Chairman*: Then I only want to ask you one question, and that is this. You eventually declare under head E in your summary that your organisation declare themselves in favour of prohibition by law of the private manufacture of and trade in arms. Now the only question I want to ask you is this—whether, before arriving at that decision, you have considered what the effect of prohibition of private manufacture might be if governments themselves became traders in arms—whether the dangers and difficulties and objections to governments trading in arms would not be even greater than the similar dangers and difficulties and objections of private traders trading in arms. That case was put before us yesterday.

Mr. Hunter: Yes. I think that we would have a fairly clear answer to that line of argument were it put forward.

562. *Chairman*: I only asked you whether your organisation had considered it?

Mr. Hunter: Yes, I think I can say that we have. What we would submit in that connection is that if public opinion in this country is sufficiently strong to insist, in its own interests, that private trade in armaments manufacture should cease, it is hardly likely that the same public opinion would consent to allow its Government—and, after all, this is a democratic country—

563. *Chairman*: Oh, but I am not speaking of our Government merely; I am speaking of universal prohibition, not a mere prohibition in our country. Oh, no, I was not thinking of that; I do not think anybody was thinking of that; they were thinking, assuming that prohibition was practically universally accepted, then the alternative would be that there would be only governments left to supply armaments, and it is not a question of what our government would do, but of what other governments might do?

Mr. Hunter: Yes. There, of course, we have no answer to that. If the people of another country are unable to persuade their government to prohibit private manufacture, naturally we have no guarantee whatever that they would be able to prohibit their government from public manufacture and trade. We would not contend that, but we feel that as regards this country there is a case for the prohibition by law of the arms traffic, irrespective of what is happening in other countries, and I think in our original memorandum—perhaps it is not in this one that you now have before you, but in the original one that we submitted to the Commission—we did make the point that our recommendation was for unilateral action on the part of this country in this connection, irrespective of what happened in other countries. We had in mind, of course, the position in Germany at the present time, where, as I pointed

(The Witness withdrew.)

Chairman: I think that finishes the evidence for to-day.

There will be no more evidence called to-day, and we shall not sit to-morrow, because there is no evidence available for us to deal with; but I should like to make a short statement before we rise with reference to the procedure we have followed hitherto, and it is this. We have now concluded the hearing of several of the organisations which up to the present have applied to be heard. The course of procedure adopted has been that on receipt of the application to be heard the organisation has been informed that a full statement of what they wish

out, the armaments manufacturers are in a very much more privileged and powerful position than they are in this country, and we feel that if any action taken by this country were to be contingent on action being taken in all other countries, or at any rate in the principal trade rivals of this country, then it would probably be a question that would be postponed *sine die*.

564. *Chairman*: Yes; but that prompts me to ask another question, and that is this. One quite understands the argument in favour of acting unilaterally from the moral point of view; one quite follows that; but from a peace point of view do you think that it would have any effect, any one single country adopting the attitude you propose? That point was put before us yesterday, too.

Mr. Hunter: Yes, I think it does have a very big effect, because all new modes of thought have to start somewhere, and I would go back to the analogy of the slave trade, where Denmark, I believe, was the first country to prohibit the slave trade, and Britain came in very early; but this prohibition by these countries did not lead to all the business being snuffed up by their trade rivals, but actually and historically to the final abolition of the traffic.

565. *Professor Gutteridge*: But was not that due to the work of the British Navy? It was the British Navy that stopped it, you know. I think you must give the British Navy credit for that. If the British Navy had not been supreme at that time the slave trade would have gone on.

Mr. Hunter: Well, Sir, that perhaps would not invalidate my argument.

566. *Professor Gutteridge*: No, no; but still—

Mr. Hunter: I do not know whether that is so or not.

567. *Dame Rachel Crowdy*: *Mr. Hunter*, I am specially interested in paragraph E in your memorandum, the re-armament of Germany. Your document is headed "Statement of evidence to be tendered by the British Movement against War and Fascism," and in your first paragraph of E you say: "There are indications that British firms have taken a considerable part in this re-armament, though not necessarily in contravention of the strict letter of the Treaty." Of course, that is very important. Can you give us any more indications than those you have given us in your memorandum, excluding the air service, which we understand is under a different system of control? Can you tell us anything more than what you put here—I mean, for example, of exports of arms, export of machine guns, export of anything of the kind from British firms?

Mr. Hunter: No, we have no reason to suppose that there is an export to Germany in this period of any article that clearly can only have a war use, other than this appearance—which we submit is still somewhat unexplained—of an advertisement of the tank in Germany; but we had rather in mind—because we say "not necessarily in contravention of the strict letter"—the sort of transactions which the previous witness drew attention to, large transactions in nickel and the various other raw materials.

568. *Dame Rachel Crowdy*: I see. Then you cannot help us any further in that?

Mr. Hunter: I am afraid not.

569. *Chairman*: Thank you. We are obliged to you.

to submit to the Commission must be supplied. We have allowed these statements to be read in full at our sittings in public, not because we considered all the statements contained in them to be relevant to our inquiry, but because we considered it preferable to allow the organisations to express their views in their own way, rather than to attempt to edit the statements or to shut out anything contained in them. Whether we shall continue that procedure in the future depends upon circumstances, but I desire to offer this explanation of the procedure as far as we have gone.

(Adjourned.)

APPENDIX I.

MEMORANDUM SUBMITTED ON BEHALF OF THE COMMUNIST PARTY OF GREAT BRITAIN

1. We wish to submit evidence to substantiate the following points:—

(I) The role of the United Kingdom as the largest world exporter of armaments, and therefore as the main pillar of the world arms traffic, the evils of which have been universally condemned.

(II) The role of this export of armaments in fomenting war all over the world and assisting the oppression of colonial peoples and working masses.

(III) The direct responsibility of the Government for the operations of the arms traffic and its close inter-connection with the private armaments trusts.

(IV) The complicity of the entire capitalist class in this system of fomenting armaments and war and in drawing profits therefrom.

(V) The responsibility of the present National Government in shielding the armaments firms, blocking adequate inquiry and limiting the terms of reference and powers of this Commission.

(VI) The inefficiency of the proposals for reform put forward, which seek to strengthen the state control of the production and export of armaments, while leaving the export of armaments untouched.

(VII) Immediate proposals.

I.—THE ROLE OF THE UNITED KINGDOM AS THE MAIN WORLD EXPORTER OF ARMAMENTS.

2. The United Kingdom is the main centre of the world's armaments trade. One-third of the world's armaments exports is estimated to come from the United Kingdom. The League of Nations Statistical Yearbook of the Trade in Arms and Munitions, 1934, calculates the following percentages of the world total of armaments exports from the main exporting countries:—

	PERCENTAGE OF WORLD EXPORTS OF ARMS.				
	1928	1929	1930	1931	1932
Great Britain	33.7	33.6	30.5	37.8	29.9
U.S.A....	18.1	16.6	11.6	11.0	8.7
France	14.7	14.5	12.8	7.7	27.7
Sweden	4.6	4.6	7.6	10.5	11.0
Czecho-Slovakia	3.6	4.9	9.4	11.1	4.2

Against a considerable fluctuation of the other countries British predominance remains constant at an average of one-third of the total. The heaviest responsibility for the evils of the world arms traffic thus rests with Britain.

We do not propose to dwell on the processes of corruption of foreign government officials,—

"The majority of foreign government officials are so badly paid that it would be impossible for them to live on their salaries; it is an understated thing that they should receive tips."

(Captain J. H. Ball, Managing Director of the Sole Armaments Company, interview to the "Manchester Guardian," 12th September, 1934);

the direct use of British diplomatic machinery to secure contracts,—

"Our diplomatic help is given only when a foreign State has announced its intention to purchase from abroad; then our service naturally does its best to secure that the British firms should get a proper opportunity."

(Sir John Simon in the House of Commons, 8th November, 1934);

or the direct interest in foreign wars (e.g., in China, or the Bolivia-Paraguay war), by which this trade is maintained. These evils have been widely exposed, and the evidence is familiar.

II.—DESTINATION OF BRITISH ARMAMENTS EXPORTS FOR THE FURTHERANCE OF WARS AND COUNTER-REVOLUTION.

3. The destination of British armaments exports is no less important than the very high total. It is worth noting that the main proportion goes to foreign countries and not to British countries.

BRITISH EXPORTS OF ARMS AND AMMUNITION (£000).

	1928	1929	1930	1931	1932	1933
To foreign countries	1928	2308	1737	1803	1826	2114
To British countries	2180	2080	1763	1144	1063	1365

The years 1930-1933, the years of rising wars in foreign countries (Japan-China, South America), have seen a rapid rise in the proportion of British exports of arms to foreign countries. These wars have brought rising profits to British armament firms.

4. Certain salient directions may be noted:—

(i) JAPAN.—The rise in British armaments exports to Japan in the years 1929 to 1932 reveals the following picture (£000):—

	1929	1930	1931	1932
	98.2	173.7	216.0	230.6

In the years 1931-1932 Japan carried through its aggressive war against China for the conquest of Manchuria and the bombardment of Shanghai. This aggression was condemned by the League of Nations with the British Government participating, and led to the withdrawal of Japan from the League of Nations. The United States further protested at the violation of the Washington Nine-Power Treaty. At the same time as the League of Nations was vainly endeavouring to check this flagrant violation of treaties and aggressive war of conquest, British armament manufacturers were supplying the means for it to be carried out.

(ii) CHINA.—British arms exports to China, according to the very incomplete official returns, show the following picture from 1930 to 1933 (£000):—

	1930	1931	1932	1933
	16.7	24.6	7.3	223.5

During the critical years of Japanese aggression on China the main British support went to Japan. 1933 saw the concentration of Chiang Kai Shek's counter-revolutionary war against the Chinese Soviet Republic. British arms exports to China showed a steep rise; arms were poured in to support this counter-revolutionary war.

(iii) SOUTH AMERICA.—Figures of exports of armaments to South American countries are not available for 1934. It is only possible to call attention to the export of arms and munitions to Bolivia in 1933, which totalled £331,700, as compared with £26,500 in 1931 and £27,200 in 1932; and 15,850,000 cartridges in Paraguay in 1933.

(iv) POLAND.—The rise in British armaments exports to Poland during the years 1929-1933 is shown in the following return (£000):—

	1929	1930	1931	1932	1933
	3.4	9.2	13.4	82.1	118.2

This steep rise is of menacing significance in the present diplomatic situation. Germany, Poland and Japan are the three pillars of the developing anti-Soviet combination which is threatening aggressive war on the Soviet Union (German-Polish refusal of the Eastern Guarantee Pact, German-Polish Military Treaty, semi-official schemes for the conquest of the Ukraine). Britain is actively arming Poland and Germany, as well as Japan, in preparation for such counter-revolutionary war on the Soviet Union.

(v) GERMANY.—The figures of British arms exports to Germany are not available; but the active British participation in the re-arming of Germany, contrary to Versailles, is common knowledge, and was illustrated by the appearance of a Vickers advertisement of tanks in a German military organ (the subsequent "explanation" by the Chairman of Vickers that the advertisement was published in this organ in order to reach the South American public lacks even plausibility, since the circulation of this organ outside Germany is minute, and the natural choice for South American advertising would have fallen, if not on a South American, then on a Spanish journal). At the annual meeting of Vickers, Ltd., in March, 1934, the Chairman, Sir Herbert Lawrence, on being asked for an assurance that the firm was not engaged in re-arming Germany, replied:

"I cannot give you an assurance in definite terms, but I can tell you that nothing is being done without complete sanction and approval of our own Government."

This direct complicity of the British Government only makes the case more flagrant. The sharp rise in British exports of war raw materials to Germany is also striking:

British Exports to Germany (£000)	1932	1933	1934
Nickel, unwrought	...	182	341
Cotton Waste	...	152	87

5. Of especial significance is the export of arms to the colonial countries. For example the figures of British exports of arms and ammunition to Portuguese East Africa may be taken (£000):

1930	1931	1932
29.6	24.7	71.4

These arms are exported only to the Government, not to the colonial peoples, who are cut off by the imperialist powers from access to arms for the defence of their independence against alien rule. Thus these exports of arms are solely for the purposes of colonial oppression.

6. Of similar significance is the export of armaments to countries engaged in active counter-revolutionary suppression of the workers' struggle, e.g., Spain. Exports of arms from Britain to Spain show the following values (£000):

1928	1929	1930	1931	1932
9	803	439	215	525

Guns, howitzers and mortars were exported from Britain to Spain to a total of 27,855 cwt., between 1928 and 1933, and gun mountings to a total of 72,262 cwt. These arms, manufactured by British workers, were destined to be used against the Spanish workers.

III. BRITISH GOVERNMENT COMPLICITY IN THE OPERATIONS OF THE ARMAMENTS TRUSTS.

7. The distinction between the "private" armaments trusts and the Government and state apparatus is a formal one. The trusts are "private" in so far as the profits of the war-trading are appropriated by the capitalist class in their individual capacity as shareholders. But their operations are conducted in complete collaboration with the Government and state apparatus, with which they are closely interlocked. The operations of the armaments trusts are the operations of British Imperialism as a whole, and are the direct responsibility of the British State.

8. This close interlocking of the armaments trusts and the State is most clearly visible in personnel. Thus the Board of Directors of Vickers-Armstrong in 1932 included three Generals, a Commander and a Colonel, and comprised as leading members (1), as Chairman, the former Chief of Staff of the British Army Headquarters in France, (2) a former Departmental Chief of the Ministry of Munitions, (3) a former Master-General of the Ordnance and member of the Army Council, (4) a former Director of Raw Materials Finance at the War Office and Ministry of Munitions, (5) a former Member of the Ordnance Committee, etc.

Imperial Chemical Industries, Ltd., with its £70,000,000 capital, was developed out of the directly government-subsidised British Dyestuffs Corporation, and contains in its Articles of Association that "the company is to keep in touch with His Majesty's Government in all matters of technical information and research, in such manner as the President of the Board of Trade may direct." The great armaments trusts, like Vickers and I.C.I., are in effect great departments of state, like of the Bank of England, but removed from Parliamentary control, and working, on a basis of state support, for private profits.

9. The system of export licences for the arms trade further demonstrates the close collaboration between the state and the armaments trusts. Licences are granted by the Board of Trade or Home Office guided by the advice of the Foreign Office and Service Departments. These departments are always consulted and refusal to grant licences is sometimes taken on their advice. Seven such refusals were given between 1930 and 1934 (Hansard, 9th May, 1934).

The fact that only seven refusals arose between 1930 and 1934 shows that the export licence system is not a system for restricting the arms traffic, but solely for guiding it in accordance with the major strategic and diplomatic interests of imperialist policy. Through this weapon British Imperialism is able to hold a heavy hand over the smaller states, and at the same time to prevent arms reaching oppressed peoples struggling for their freedom ("We give no licence except for export to Governments, a thing which is worth noting"—Sir John Simon, in the House of Commons, 8th November, 1934).

The close connection of state policy and the armaments traffic is similarly testified in the letter of Captain John Ball, Managing Director of the Solely Armaments Company, produced at the American Arms Inquiry:—

"As we are to a very great extent controlled by the varying policy of the Government, it is rather difficult for us to enter into firm and fast agreements with any other armament firms. Stocks we control are of such magnitude that the sale of a big block of them could alter the political balance of power of the smaller states, involving corresponding complications from the point of view of finance and industry. You will, we are sure, fully appreciate that under these conditions we have to submit to a fairly strict control by the authorities concerned."

A further statement of the same Captain Ball in an interview to the press may be quoted:—

"The same restrictions apply to Vickers, and if all the money in the world is on the table, business cannot be done if it is against the policy of the British Government."

Thus direct responsibility for every operation of the nominally "private" British arms traffic rests with the British Government.

IV. COMPLICITY OF THE ENTIRE CAPITALIST CLASS IN THE ARMS TRAFFIC.

10. Not only is the distinction commonly drawn between the private armaments manufacturers and the state or Government thus in practice invalid, but the distinction also commonly drawn between the

private armaments manufacturers, drawing profit from war and the manufacture and sale of the weapons of destruction, and the main body of the capital-owning class is equally invalid. The vast armaments trusts, with their capital running into many tens of millions of pounds, are representative of finance-capital as a whole, and are closely interlocked with the entire capitalist structure. Their shareholding lists run through the entire body of the governing class, financiers and politicians, lords and ladies, generals and admirals, bishops and clergymen, etc. All draw their profits from the trade in death, and these profits run into many millions of pounds per year. Further, these profits have rapidly risen in these recent years of increasing war-tension. Thus the profits of Imperial Chemical Industries have nearly doubled during the past four years, showing the following increase:—

1931	1932	1933	1934
£3,408,290	£4,729,072	£6,001,605	£6,349,107

Similarly the profits of Vickers Ltd. have risen from £816,362 in 1933, to £970,352 in 1934, and those of its subsidiary, Vickers Armstrong Ltd., have risen from £491,952 in 1933 to £724,541 in 1934, an increase of 47 per cent. in one year. In view of the character of the shareholding lists of these firms (both the open shareholders and the concealed shareholders through nominee holdings), it may correctly be said that the rising war tension has brought rapidly rising profits into the pockets of all the most influential members of the ruling class.

To these vast direct profits of the armaments trusts, with all the ramifications of their beneficiaries, must be added the additional profits of the firms indirectly supplying war industries running through the widest range of industry, and benefiting from the extension of the war trade.

11. Thus not only the immediate directors of the armaments firms, nor even only the leading financiers in every branch, but in practice all the leading representatives of the present ruling social order in all spheres, the front bench politicians, the upper ranges of the bureaucracy, of the judiciary, of the fighting services, of the press, of the church, etc., are peculiarly interested in the maintenance and extension of the arms traffic and draw rising profits from its extending operations. Under these conditions it is not surprising that any attack upon the arms traffic meets in practice with united resistance from the existing social order. This was illustrated in the hostile reception in British governing circles to the revelations of the American Arms Inquiry and the universal endeavour to minimise the significance of these very serious revelations.

As an example of the close inter-relations between the armaments trusts and the other ruling social forces it may be recommended that the Commission should make a close investigation into the relations between the *Times* newspaper and Vickers Ltd., the reasons for the identity in a succession of instances of *Times* foreign correspondents and Vickers agents, and the reasons why the *Times*, which purports to be a newspaper, should have suppressed entirely the important interchanges between shareholders and directors at the recent annual meeting of Vickers Ltd., reporting only the directors' reply, but not the serious allegations laid, which were only fully reported in the newspapers of the left.

12. The indictment of the evils of the arms traffic is thus necessarily an indictment of the capitalist class as a whole and of the present social order. The fight against the arms traffic can in consequence only be fought, not as a battle of the existing social order against a small section of evil doers, but as a battle of the working class against the entire capitalist class.

V. RESPONSIBILITY OF THE PRESENT NATIONAL GOVERNMENT FOR BLOCKING ADEQUATE INQUIRY INTO THE ARMS TRAFFIC.

13. The unity of the existing ruling forces in defence of the arms traffic, even while professing to deplore its evils, is most sharply expressed in the role of the National Government in this connection.

British Imperialism has consistently opposed the Soviet proposals for total disarmament, for disarmament by stages, or for the reduction of armaments.

The National Government has led the opposition at Geneva to the American proposal for the international inspection of the arms traffic.

The National Government has sought to block by every means in its power the investigations of the American Arms Inquiry, and has exerted direct diplomatic pressure to prevent important documents being brought before the inquiry.

The National Government has steadily resisted the rising demand for a corresponding inquiry in this country with equal scope and powers to the American Inquiry. This attitude has made it possible for the British financial press to call attention to the superior character of British armament shares from the point of view of the investor on the grounds that there can be no danger in Britain of confidential correspondence of the armament firms being brought into the public eye:—

"Any fears which have been aroused among holders of armament shares that revelations thus far made before the United States Senate would lead to a drastic revision of the activities of British Armament firms appear to have been baseless. Foreign customers placing orders will feel assured that here at least their orders will be executed in strict accordance with the law, and that there will be no danger that their confidential correspondence will be broadcast."

(*Financial News*, 12th September, 1934.)

14. The appointment of the present Commission of Inquiry into the Arms Traffic, in belated response to the increasing pressure and demand, has fully confirmed this prediction of the British financial press. The scope and powers of the British Arms Commission are severely limited, in sharp contrast to the American.

The American Munitions Investigation Committee of the Senate was established

"to investigate the activities of individual firms, associations and of corporations and all other agencies in the United States engaged in the manufacture, sale, distribution, import or export of arms, munitions, or other implements of war; the methods used in promoting or affecting the sale of arms, munitions or other implements of war; the quantities of arms, munitions or other implements of war imported into the United States, and the countries of origin thereof, and the quantities exported from the United States, and the countries of destination thereof."

as well as to review existing legislation and the question of a Government monopoly, and to make recommendations. It had further powers to subpoena witnesses, compel the production of all documents and papers, and was provided with adequate finance to have a staff for independent inspection and discovery of the facts, instead of having to accept the prepared evidence of the interested parties.

The same information is of the highest importance in relation to the British armaments trusts, and the existing information is inadequate in the extreme. Yet the British Commission is specifically limited in its terms of reference to consider only recommendations of legislation, without any instruction to find out the facts; and it has no corresponding powers to secure evidence. According to answers to parliamentary questions, it appears that even the vitally important evidence brought before

the American Commission, affecting British firms, is not to be placed before the British Commission. It is obvious, in view of the facts already known as to the character of the operations of the armaments trusts, that the prepared statements and evidence of the armaments trusts on their own behalf cannot be accepted by any unbiased inquirer as adequate.

15. We consider that the Commission in its report should express the sharpest protest against this restriction of its scope and powers, which is equivalent to a shielding of the armaments trusts and of the arms traffic from investigation.

VI. INEFFECTIVENESS OF CURRENT REFORM PROPOSALS FOR A STATE MONOPOLY OF THE ARMAMENTS INDUSTRY AS A SOLUTION.

16. The terms of reference of the Commission put forward for consideration three lines of legislative proposals:—

(i) State Monopoly of the armaments industry, whether by the United Kingdom alone, or by all countries;

(ii) Alternatively, measures to remove or minimise the evils of private manufacture;

(iii) Revision of the existing regulations for the control of the export trade in armaments.

We consider that these proposals, even while under certain conditions they may be utilised to assist the fight against the arms traffic, cannot be regarded as a solution of the evils of the arms traffic.

17. It is clear from the analysis already made of the existing close relations and collaboration of the state and the armaments trusts, that a re-organisation of the armaments trusts as a monopolist state trust could not constitute a basic change. The unified state trust would be able to organise the production of armaments more efficiently and more economically than is possible under the conditions of private industry, as was abundantly illustrated by the experience of the state factories during the war. This would constitute a measure of rationalisation, and would enable the state to secure a larger volume of armaments for the same expenditure, or alternatively to devote a larger sum of money to other forms of war expenditure. But it would not mean an elimination of the profits factor, if nationalisation were to be conducted on the basis of compensation. If the existing armaments trusts were to be nationalised on the same basis as the London Traffic Trust has been taken over, by the substitution of new stock on very generous terms to the shareholders for their existing stock, it would mean that the production of armaments would continue to be yielding many millions of pounds a year to the private stockholders, with the addition of a state guarantee for this income. Under these conditions the transformation to a state monopoly might prove a very profitable transaction to the armaments money-makers. It is likely, however, to be resisted by these so long as the speculative possibilities of very high profits through war outweigh the advantages of the guaranteed state income. If, further, the State Armaments Board were to be constituted on the same lines as the London Transport Board, independent of control by parliament, it would mean that the operations of the armaments industry would in practice continue as secret and uncontrolled as ever, but with a mantle of open state sanction and approval. Finally, if the State Armaments Monopoly were to take over the business of the export of armaments, this would enormously increase the power of pressure on foreign governments. Thus the establishment of a State Armaments Monopoly would not necessarily in itself mean any step forward to removing the existing evils of the arms traffic, but might mean an intensification of those evils. The countervailing considerations in view of which we nevertheless advocate the prohibition of

the private manufacture of armaments will be given in the next section.

18. The same considerations which apply to a State Monopoly of armaments production and sale apply in still stronger measure to any half-way proposal of state control of continued private production and sale of armaments.

19. No revision of the existing system of export licences for the export of armaments can remove the basic evils of the export of armaments. The only measure which should be taken is the complete prohibition of the export of armaments.

VII. CONCLUSIONS AND IMMEDIATE RECOMMENDATIONS.

20. The Communist Party holds the view that the evil of armaments, and the therefrom arising and consequential evils of the armaments traffic or drawing of profits from the manufacture and sale of the instruments of death and destruction, are the inevitable consequence of the existing social order, based on class-exploitation, on the imperialist subjection of the colonial peoples, and on imperialist conflict for the division of the world. The evils of the armaments traffic, which the present Commission has been appointed to consider how to minimise, cannot be isolated from the question of armaments as a whole.

The unanimous refusal, by all the imperialist powers, of the Soviet Union proposals for total disarmament, proves that the maintenance of armaments is indispensable to imperialism. But if armaments are thus indispensable to capitalist society, it necessarily follows that within capitalist society armaments, like any other commodity, can only be produced capitalistically, i.e., within and as an integral part of the profit-making structure. Hence arises the dilemma that, while human feeling revolts against the conception of drawing profits from producing and selling the instruments of death and destruction, the economic-political necessities of the existing order compel it; and in the end the consciences of all the most highly respectable and moralising members of the present ruling class, including the bishops or official representatives of the Sermon on the Mount, find no difficulty in reconciling themselves to this necessity. The task of the Commission, to find means to overcome the evils of the armaments traffic, while maintaining the production of armaments within capitalist conditions and leaving its roots in the existing capitalist order untouched, is in fact a contradiction in terms and can admit of no final solution. The evils of the armaments traffic can only be overcome by the overthrow of capitalism and the establishment of the world socialist society, in which armaments will no longer be necessary and production will be organised for use, not profit.

21. At the same time the Communist Party puts forward the following immediate recommendations, not as means to achieve the impossible task of overcoming the evils of the armaments traffic within capitalism, but as means to assist the fight of the working masses against the armaments traffic and those responsible for it:

(i) PROHIBITION OF THE PRIVATE MANUFACTURE AND SALE OF ARMAMENTS AND MUNITIONS.

We advocate this, not on the ground that a state armaments monopoly would be less of an evil to the working masses, but on the grounds that the existing complete secrecy of operations of the private armaments trusts and the concealment of government responsibility places heavy obstacles in the way of the effective fight against armaments, and the establishment of direct government responsibility for every piece of armaments construction in the country would assist to strengthen this fight. As a necessary corollary of this we advocate:

(ii) FULL PUBLICITY OF ALL STATE CONSTRUCTION OF ARMAMENTS AND MUNITIONS.

Such publicity, if effectively enforced, would place a powerful weapon in the hands of the fight against armaments.

(iii) ABOLITION OF THE EXPORT LICENSING SYSTEM AND COMPLETE BAN ON THE EXPORT OF ALL ARMAMENTS AND MUNITIONS.

Two arguments are commonly put forward for the maintenance of the export of armaments. The first is that this export ensures the existence of a larger armaments-producing plant in Britain, which is immediately available for use by the Government in case of war emergency. The second is that any ban would be damaging to the interests of the smaller countries, which have not equal facilities for the production of armaments.

Both arguments lead in fact to the opposite conclusion.

The limitation of armaments-producing plant, and lack of facilities for rapid extension in the event of war, would lead the British Government to hesitate the more before going to war, whereas the existence of large facilities is an encouraging factor to war.

The imperialist export of armaments to the small countries is not made in the interests of the smaller countries, but in the interests of imperialism, which already regulates this export according to its diplomatic and strategic policy. Through this export of armaments, and the loans and credits commonly associated therewith, imperialism imposes on the smaller countries a crippling burden of armaments which, on their own resources, they would never have attempted to maintain, drags them into entangling war alliances and makes them virtual vassal states, drives them into war against their own interests, and, where war between small states has broken out, enormously prolongs the war (as in the case of the Bolivia-Paraguay war) when the countries, if left to their own

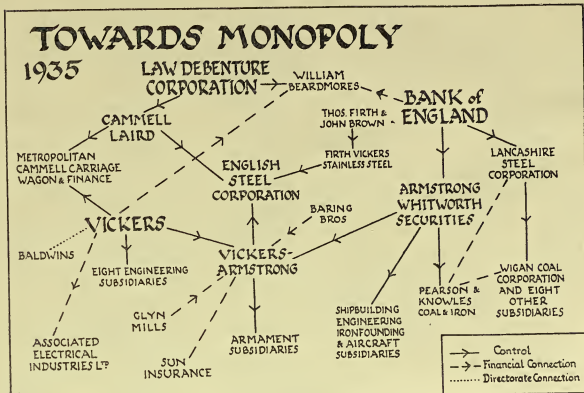
limited resources, would have been compelled speedily to bring it to an end. The role of the export of armaments in maintaining civil war and counter-revolutionary governments, as in China, is notorious. The export of armaments for maintaining war and terrorism throughout the world; and its complete prohibition is imperative.

(iv) HEAVY PENALTIES FOR ANY DEFAULT ON THE ABOVE PROVISIONS AND THE ESTABLISHMENT OF ELECTED WORKERS' CONTROL COMMITTEES IN THE ARMAMENTS FACTORIES AND A CENTRAL WORKERS' CONTROL COMMISSION, ELECTED FROM THE WORKING CLASS ORGANISATIONS, AND WITH FULL POWERS OF INSPECTION AND CALLING FOR DOCUMENTS, TO CHECK EXECUTION OF THESE PROVISIONS AND ISSUE PERIODICAL REPORTS.

In the case of the armaments industry, more than any other, regulations and prohibitions are valueless without adequate independent inspection and enforcement. Even the expert Inter-Allied Arms Control Commission in Germany in the post-war years was not able to prevent a considerable measure of secret re-armament. Such independent inspection, however, cannot be forthcoming from the state apparatus or the capitalist class, which, as already shown in the previous analysis, are involved up to the neck in direct complicity and collaboration in the armaments traffic. In consequence, independent inspection and enforcement can only be provided from the representatives of the working class, whose interests are directly in conflict with the interests of the whole system of armaments. Such workers' control organs, established throughout the armaments industry from top to bottom, in the war-factories and in the depots of war-materials, as well as in the book-keeping departments, should keep vigilant eye on the production of armaments, check the correctness of the official reports, and maintain guard against any attempt at the secret consignment of munitions abroad.

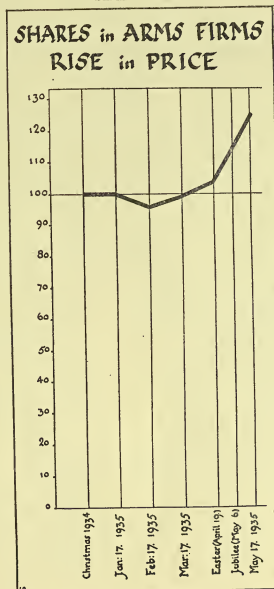
APPENDIX II.

TOWARDS MONOPOLY.



APPENDIX III.

SHARES IN ARMS.



Note.—This chart has been arrived at by taking the ordinary share values of seven armament firms (Vickers, Cammell Laird, Hadfields, Fairey Aviation, Hawkers, Swan Hunter, Rolls Royce). The chart has been compiled after weighting the figures to allow for the different ordinary share capitals of the company.

APPENDIX IV.

STATEMENT OF EVIDENCE TO BE TENDERED BY THE BRITISH MOVEMENT AGAINST WAR AND FASCISM

The British Movement Against War and Fascism considers the primary purpose of the Royal Commission, appointed as a result of strong pressure by public opinion, must be to examine how the traffic in the means of destruction—which is utterly abhorrent to all civilised people—can be effectively and speedily suppressed.

It is proposed for this reason to offer to the Commission evidence showing:—

(a) That wars now in progress in South America and in China are being fought with arms and munitions supplied by British firms, and that these wars are attended with very great suffering and loss of life to the people engaged.

(b) That British armament manufacturers are at present reaping very high profits from an export trade which is resulting in wholesale slaughter.

(c) That British armament firms are in a position to influence the British and other Governments to give them orders for war material, and that this influence is, in fact, being used.

(d) That persons holding responsible positions in public life, and in a position to influence public opinion, are shareholders in armament firms and that this is a dangerous and intolerable state of affairs.

(e) That, in contravention of the Treaty of Versailles, prohibited war material has been supplied by British firms to Germany.

In general, the British Movement Against War and Fascism wishes to point out that it is here laying before the Commission only a small selection of the available evidence. It has been concerned only to establish a *prima facie* case that the allegations made are capable of substantiation. It conceives it to be the function of the Commission in the exercise of its powers to investigate in the fullest detail the conditions which cannot be satisfactorily examined by bodies not provided with judicial powers.

A. WARS IN SOUTH AMERICA AND CHINA.

It is unnecessary here to produce evidence of suffering and loss of life in the war between Bolivia and Paraguay which has now been in progress for nearly three years. According to *The Times* newspaper in one battle alone in August, 1934, there were 11,000 casualties. According to official figures British armament firms have supplied large quantities of war material to both Governments.

<i>Exports to Bolivia, Jan., 1932—June, 1933.</i>		
Ammunition	...	2,130,550 rounds.
Machine Guns	...	99
Tanks	...	6

<i>Export to Paraguay, Jan., 1932—Jan., 1933.</i>		
Ammunition	...	16,570,000 rounds.

But the full extent of the arms trade to those Governments from Britain does not necessarily appear from export licence figures. This is illustrated by the statement in a letter from Mr. John Ball, of the Soley Armament Co., London, to the American Armaments Corporation, which was tendered in evidence to the Senatorial Inquiry in America.

"We have heard that Bolivia wants anti-aircraft guns quickly, but we do not for a moment think that shipment or sale to Bolivia could be made direct while that country is at war. If, however, an American firm of some standing bought the guns for eventual resale, things might be easier, or if the Columbia Government, who are not at war, bought the guns, they could no doubt have them."

Minister Enrique Bordenava, of Paraguay, during his evidence at the same Inquiry, claimed that he had documents showing a New York Loan to Bolivia of \$5,100,000 to pay for a \$14,000,000 Vickers arms contract. (cf. *New York Times*, Sept. 16th, 1934.)

In the same letter of Mr. John Ball reference is made to the export of arms to China.

"As you are doubtless aware, China consumes vast quantities of small arms every year. They have bought large quantities of rifles from us—over 100,000 in 1931 and 1932."

The official export figures show that in the period August, 1931, to June, 1933, exports from Britain included:—

46,270,000 cartridges.
484,462 lbs. cordite.
80 machine guns.
12 amphibian tanks.

B. ARMAMENT PROFITS.

Extremely large profits are being made by British armament firms both as a result of wars waged abroad in the last few years and in some cases still in progress, and as a consequence of war preparations in Europe and all over the world.

Tables of Income and Profits.

	Vickers, Ltd. (Gross Income.)	I.C.I. (Net Profits.)
	£	£
1932	777,475	4,729,072
1933	728,246	6,001,605
1934	958,678	6,349,107

It is particularly significant that the recent tension in Europe has coincided with a spectacular rise in British Aircraft Shares.

	Price.		Rise in Market Capitalisation.
	Jan. 3rd.	May 10th.	
			£
Rolls Royce	108/9	137/6	1,131,565
Napier	12/6	13/7 5	122,850
Hawker	23/9	32/9	720,000
Faircy	21/-	25/6	375,000
De Havilland	53/9	65/3	230,000
Handley Page (Pref.)	14/-	21/4 5	193,582
Boulton Paul	4/6	11/2	337,500
		Total	£3,110,497

On the capital as at Jan. 1st.

(*News Chronicle*, May 11th, 1935.)

The close dependence of the profits of Vickers, Ltd. on contracts for war material is illustrated by the statement of that Company's Chairman on March 28th, 1928:—

"Unless armament orders are available, it will be difficult to earn satisfactory profits."

C. POWER TO INFLUENCE GOVERNMENTS.

It is particularly difficult to lay a large quantity of evidence before the Commission on this subject, but it is submitted that the following quotations show clearly that influence is brought to bear, and the Commission is urged to inquire very fully into this question:—

"The associations of myself and Major Clarke with Admiral Chatfield for a considerable period of time have been unusually cordial, and he has on many occasions smoothed down obstacles in our path."

(Sir Robert Hadfield, at the General Meeting of Hadfield's, Ltd., manufacturers of shells and armour plating.)

"I have had a word with the director of contracts at the Admiralty, who is a friend of mine, and would like this. He, I know, tried to get us the order for all five submarine last year."

(Letter from Sir Charles Craven, Managing Director of Vickers, Ltd., Oct. 7th, 1927, quoted in the U.S.A. Arms Inquiry.)

"MY DEAR MR. SPEAR,

"The Germans are moving terribly in Spain, and unless we all combine against them, we may find them installed one day, and action is necessary.

"The U.S. Ambassador in Spain is a very clever gentleman and highly esteemed, and I think you should arrange for instructions to be sent to him from your State Department, for him to tell the Spaniards that the U.S. Government work very harmoniously with the Electric Boat Company, and that the U.S. hopes that the Spanish Government will be satisfied with the guarantee of the Electric Boat Company and that of Vickers, and will require no other guarantee.

"The British Government will be hard to move in the same direction, but when you inform me that your Government have given the necessary instructions to their Ambassador in Madrid, I will have no difficulty in persuading the British Government to do it too.

"Yours sincerely,

"BASIL ZAHAROFF."

(Letter from Sir Basil Zaharoff to Mr. Spear, of the Electric Boat Co. Quoted in U.S. Arms Inquiry.)

The fact that British armament firms are accustomed to sell their goods to foreign governments is calculated to disturb friendly relations between the British and other foreign governments. Such a situation arose in February, 1933, over a consignment of arms from Italy to Hungary, which led to the despatch of a note of protest by the British and French Governments to the Austrian Government (February 11th, 1933). This was not a case in which British firms were involved; but in May, 1935, the Italian Government took great exception to the importation of arms into Abyssinia, in which British firms have played a part.

D. INFLUENCE OF ARMAMENT SHAREHOLDERS.

Quite apart from any question of personal integrity, the present situation in which prominent public figures are shareholders in British armament firms, and in consequence financially interested in the profits of those firms, is on principle dangerous and intolerable. It is clearly not in the public interest that those in a position to sway public opinion should have any financial interest in the arms trade.

It has recently come to light that Sir George Clive, K.C.B., while holding the appointment of Military Secretary to the Secretary of State for War, was the largest single shareholder in the banking firm of Dawney Day. This firm in turn held £250,000 in the firm of Andrews Toledo, being over 50 per cent. of that firm's capital. This firm is engaged mainly in armament manufacture. It is also to be noted that Vice-Admiral Sir George Goodwin-Goodwin, who held the appointment of Engineer-in-Chief to the Fleet, 1917-1922, was later Managing Director of this firm.

A short selection of shareholders and directors of Vickers, Ltd., is here produced; it will be found to include many persons who have held important appointments in the fighting Services:—

Rt. Hon. Sir John Gilmour, P.C., M.P.

Sir Robert Horne, M.P.

Lord Clinton.

Marquis of Linlithgow.

The Ven. Archdeacon S. H. Phillips.

Rev. Arthur Preston, Bishop Suffragan of Woolwich.

The Rev. Ed. H. Firth, Hon. Canon, Winchester Cathedral.

Colonel H. A. Barclay, C.V.O., A.D.C. to the King, 1910-25.

Sir J. S. Wardlaw-Milne, M.P.

Stuart J. Bevan, M.P., Recorder of Bristol.

Harold P. Mitchell, M.P., Private Secretary to Under-Secretary for Overseas Trade.

Gen. Sir Herbert Lawton, Chairman.

Gen. Sir J. F. Noel-Birch, Director.

Lieut.-Col. J. B. Neilson, Director.

Com. Sir Charles Craven, R.N., Director.

K. REARMAMENT OF GERMANY.

It is now officially admitted that Germany has been rearming, at first secretly and now openly, in violation of Part V of the Treaty of Versailles. There are indications that British firms have taken a considerable part in this rearmament, though not necessarily in contravention of the strict letter of the Treaty, and despite the existence of the export licence system.

It will be remembered that at the annual meeting of Vickers, Ltd., held on March 25th, 1934, the attention of the Chairman was called to an advertisement inserted by Vickers, Ltd., in the German military organ "Militär-Wochenblatt", in 1932. This advertisement contained a picture of a tank, one of the weapons forbidden to Germany. When asked to give an assurance that Vickers arms and munitions were not being used for the secret and prohibited rearmament of Germany, the Chairman replied:—

"I cannot give you an assurance in definite terms, but I can tell you that nothing is done without the complete sanction and approval of our own Government."

Large numbers of aeroplane engines adapted to military uses have been exported to Germany. In May, 1934, 80 Armstrong Siddeley engines were ordered in England. It was stated in the House of Commons by Sir John Simon that this order did not conflict with the Versailles Treaty. Similarly the London Rolls Royce works have sold to Germany many of the new "Kestrel" engines. These engines are used in England in the following types of military aeroplane:—

Hawker Fury (One-Seater Fighter).

Hawker Demon (Two-Seater Fighter).

Hawker Hart (Day Bomber).

Hawker Nimrod (One-Seater Fighter).

Westland Wallace (Day Bomber).

Handley Page (Night Bomber).

Hawker Osprey (Reconnaissance).

Shortt Singapore (Seaplane).

To summarise, the British Movement Against War and Fascism draws the conclusion that the Royal Commission must needs, after a careful consideration of the evidence, declare itself in favour of the prohibition by law of the private manufacture of and trade in arms; such prohibition to be enforced by the imposition of severe penalties, including long terms of imprisonment, on those guilty of serious contravention.

LIST OF DOCUMENTS, ETC.

Under "A."

1. *The Times*, August, 1934.

2. Board of Trade Returns, January, 1932—June, 1933.

3. Proceedings of the United States Senate Investigation into the Munitions Industry, September 4th-21st, 1934.

Under "B."

1. Stock Exchange Year Books, 1929-1935.

2. Stock Exchange Gazette, 1935.

3. *News Chronicle*, May 11th, 1935.

4. Vickers, Ltd., Annual Report, 1925.

Under "C."

1. Proceedings of the United States Investigation into the Munitions Industry, September 4th-21st, 1934.

2. *The Times*, February 12th, 1933.

Under "D."

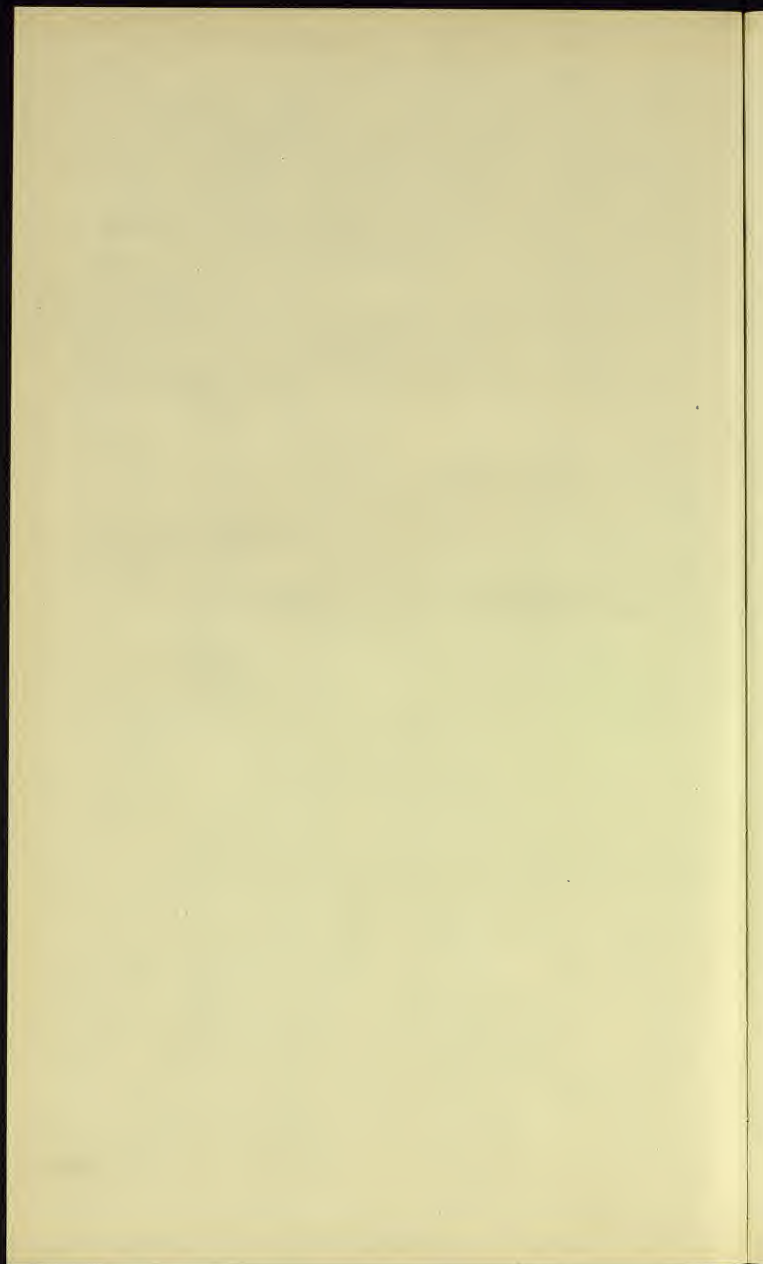
1. Annual Return of Vickers, Ltd., 1934.

Under "E."

1. Annual Report of Vickers, Ltd., 1934.

2. Hansard, May, 1934.

3. *Daily Herald*, November 9th, 1933.



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

TAKEN BEFORE THE

5

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

FIFTH DAY

THURSDAY, 20TH JUNE, 1935

WITNESSES—

Mr. J. T. WALTON NEWBOLD, M.A.

ON BEHALF OF THE INDEPENDENT LABOUR PARTY:

Mr. A. FENNER BROCKWAY.

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:

Adastral House, Kingsway, London, W.C.2; 120 George Street, Edinburgh 2;

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE
TAKEN BEFORE THE
ROYAL COMMISSION ON THE PRIVATE
MANUFACTURE OF AND TRADING IN ARMS

FIFTH DAY

Thursday, 20th June, 1935

PRESENT :

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Mr. J. T. WALTON NEWBOLD, M.A., called and examined.

727. *Chairman*: Are you Mr. Walton Newbold?

Mr. Walton Newbold: I am.

728. *Chairman*: You have prepared a statement and we now have it in print and I think you may assume that we have all read it. What course would you like to take with reference to the evidence that you wish to give us? Will you read this statement, or will you make a statement, or will you deal with this statement partly by reading and partly by comment?

Mr. Walton Newbold: I am entirely in your hands, Mr. Chairman.

729. *Chairman*: I think, if you leave it to me to decide, the most convenient course would be that you should read it, and then we should ask you questions upon it.

Mr. Walton Newbold: Do you wish me to read it straight through, or paragraph by paragraph?

730. *Chairman*: Straight through.

Mr. Walton Newbold: Do you wish me to stop at the end of each paragraph and submit to cross-examination?

731. *Chairman*: No, read it through.

The Witness read the following statement:—

I submit this Memorandum to the Royal Commission on the Private Manufacture of and Trading in Arms, not as the spokesman of any propagandist body, but as a private citizen who has made a study of this problem in all its manifold ramifications at home and abroad over a period of twenty-three years.

In 1912, upon leaving the University of Manchester, I took up this study. As a member of the Society of Friends I was concerned to remove the cause of war. As a Socialist propagandist I was interested in presenting a case as strong as possible against private enterprise and private profit. As a trained research-worker in economic history I was determined to arrive at and to present the facts regarding a border-line case of public demand and of public supply which, the further I pursued by objective inquiries, I came to regard as fundamental to the development of the state and to the technical and the commercial progress of all civilised peoples.

I wish to say and have, indeed, come before you specifically to say in the most emphatic manner possible that, whilst I have held similar beliefs myself and so can understand and, in some measure, sympathise with many of the conceptions of the

nature and conduct of the manufacture of and trade in arms advanced by Lord Cecil, Mr. Arnold-Forster and other *bona fide* pacifists, deeper and more detailed studies have compelled me to reject the theory that the manufacturers of war-material are in any serious sense contributory factors in the promotion of war-scares.

Much play has been made with the interest that shareholders in companies manufacturing and selling war material must have in the extension of their business and the incentive they must have to discourage the propaganda of disarmament.

Were these companies either the sole or even the major sources of income in the case of the persons singled out for exposure then there might be something plausible about the argument.

Members of the Society of Friends are much put out because of the statement that Mr. Barrow Cadbury appears as a shareholder in Imperial Chemical Industries Ltd. for 30,875 preference shares. He is only one of several and holds these (or did hold these for, I understand, he does so no longer) in trust. They represent an investment in a company that has been amalgamated with the arms producing branches of the Imperial Chemical Industries Ltd. but which was itself in no way connected with that other part of the business which was and is engaged in the manufacture of arms.

I have known Mr. Barrow Cadbury for twenty years. He was one of the gentlemen who found the money to publish my book, *How Europe Armed for War, 1871-1914*. He was, I believe, one of the largest guarantors. That book was subsequently published in Russia by M. Maisky, now Soviet Ambassador to this country and, later, by the Commissar for War of the Soviet Union, M. Trotzky, as a text-book for the Red Army.

But, if it is ridiculous to suggest that Mr. Cadbury is likely to be prejudiced by a holding of some 30,000 shares, what shall we say of the relatively small holding to which Mr. Arnold-Forster had reference in the case of Sir John Gilmour (3,066 shares in Vickers) or the still more insignificant holding of Sir Philip Cunliffe-Lister (25 shares in Vickers)?

The bare facts concerning this interest of M. de Wendel are given in the course of a well-argued tract entitled *The Private Manufacture and Trade in Arms* by Mr. Noel Baker who is, like Lord Cecil, I believe, connected with the League of Nations Union. In this tract and in a section entitled "The

20 June, 1935.]

Mr. J. T. WALTON NEWBOLD, M.A.

[Continued.]

Evil Effects of Private Manufacture of War Munitions" and of a sub-section headed "Armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries," Mr. Baker writes:—

"Some years ago M. de Wendel, the President of the French Comité des Forges, acquired a controlling interest in the great French paper, *Le Journal des Débats*. Shortly afterwards he bought a controlling number of shares in the *Temps* for his colleague, M. de Peyerimhoff. Both papers . . . have opposed disarmament."

I have investigated the economic activities of M. François de Wendel both in Lorraine and in Paris. I have done the same in the case of M. de Peyerimhoff. M. François de Wendel has never made a gun in his life. His firm has never made a gun. It would be as reasonable to charge Sir Andrew Duncan or Sir William Larke of the British Iron and Steel Federation with being interested in the arms trade as to charge M. François de Wendel as President of the Comité des Forges de France. It would be as reasonable to charge Mr. Evan Williams of the Mining Association of Great Britain as M. de Peyerimhoff of the Comité des Houillères de France.

I am prepared to give to the President of the Royal Commission the sources of my information as to the activities of M. de Wendel, M. de Peyerimhoff and the firm of Messrs. Schneider & Cie. of Le Creusot. I am prepared to give to the public information as to the reason why those to whom Lord Cecil and, I am sure the same is true of Mr. Noel Baker, in all innocence of purpose, have gone for their facts, have sought to stir up in this country prejudice against the Comité des Forges de France, and to name the identity of the persons concerned.

In this country, I know of one connection between an arms firm and a newspaper. It is that of Major General Dawney. He is a director of Vickers-Armstrong, Ltd., and of the Economist Newspaper Co., Ltd. I do not know that anyone has ever accused the *Economist* of crabbing disarmament.

Formerly, I am informed, the firm of Vickers, Ltd., had two other links with the Press. Sir Basil Zaharoff financed in Paris the *Excelsior*.

Sir Trevor Dawson in London was a very large shareholder in Odhams, Ltd.

But Vickers, Ltd., has been re-organised since those days and I do not think that the present directors enjoy the friendship of the *Daily Herald*.

Newspapers are certainly influenced by considerations such as the giving or withholding of advertisements. Some are even in receipt of subsidies. Here, again, I think we can take it that the degree of dependence on the advertisement or the subsidy tends to determine the degree of the influence exercised upon the policy of the paper. Mr. Pollitt and I could both give you at least one example, but it would concern not an arms firm so much as a government which owns and operates its own arms factories.

My impression is not that the newspapers which advocate an increase of aeroplanes or a Peace Ballot are disinterested, but that they publish very little which will not attract and retain customers. Except for those newspapers which publish special supplements and have a wide sale abroad, the custom of the arms manufacturers in their role of advertisers is of very little value and, again, I have not observed that either the *Economist* or the *Manchester Guardian* shows a disposition to pander to the arms trade.

Therefore, I submit the suggestions and the insinuations have no substance and can be backed by nothing that you, Sirs, are entitled to accept as evidence enough to disestablish the innocence of the British arms manufacturers.

Earlier in the pamphlet quoted above and at the beginning of his argument concerning "The Evil Effects of Private Manufacture of War Munitions" Mr. Baker refers to a case which has already been

named repeatedly in evidence before your Royal Commission. He refers at some length to

"a certain Mr. Mulliner, manager of the Coventry Ordnance Works. . ."

Summing up the facts as he appears to know them—and Mr. Noel Baker did not become connected with Coventry till nearly 20 years after the case in question—he says:—

"If there were no other story extant about the work of 'Armament Interests', the case of Mr. Mulliner alone, it seems to me, would furnish evidence enough to condemn the whole system of private profit from armaments and war."

Mr. Noel Baker, having summed up the facts as he has read them, goes on to say:—

"But Mr. Mulliner's story does not stand alone."

I desire to be allowed to submit evidence to show why I think he is completely mistaken and why I have held for 20 years the exactly contrary belief that it does stand alone.

The full story, Mr. Baker says, is told by the late Mr. G. H. Perris in *The War Traders*. This pamphlet was a reprint of a speech made by Mr. Perris at the Conference of the National Peace Council at Leeds in 1913 in which I took part and, after which, Mr. Perris gave me every encouragement to continue the investigation into this and other aspects of the arms trade. In 1914, I examined this case in a separate pamphlet and, in 1916, I devoted to it a special section in my book *How Europe Armed for War, 1871-1914*.

Further research showed quite clearly that the activities of Mr. Mulliner were part of an internecine struggle inside the private arms trade resulting from antagonisms caused in Birmingham and, later, in Coventry by the entry of the Vickers interests into the arms trade of Birmingham and their acquisition of an interest in and the furnishing of capital to William Beardmore & Co., Ltd., to expand their arms trade on the Clyde in competition with and immediately below the property of John Brown & Co., Ltd., who were the principal shareholders in the subsequently created Coventry Ordnance Co., Ltd.

The whole case showed that there was very far from being a close "ring" of armament firms. Between Vickers and John Brown & Co. the very reverse was the truth.

There is just one other case to which I should like to make reference because it bears out the argument that further research upset in my mind the earlier impression of the existence of "a War Trust."

I can hand in to you the reports of the case tried in the Imperial Courts of Japan regarding an admiral who was found guilty of taking bribes from the shipyard manager at Barrow-in-Furness of Vickers, Ltd.

It is the only proven case of bribery which I have ever been able to find and, rest assured, it was not for lack of effort to find such cases. It showed that, whatever were the close relations required by His Majesty's Admiralty and War Department to be maintained here at home between Vickers and Armstrong Whitworth & Co., they were most fiercely competing in Japan. It was not a case of bribing to get a battleship built but of bribing to get the contract away from a rival British firm.

Finally, I can give you another from an earlier date and concerning a design submitted by the late Sir E. J. Reid for two battleships for Chile and which negotiations showed quite conclusively that Vickers, Ltd. were trying fiercely to take the order for guns away from Armstrong Whitworth.

In the light of these instances drawn from the detailed researches I have made into the private trade in arms, I submit that the arguments based on a tract (which is now the sole one of its kind to which the author attaches his name and which is not now out of print) critical of the continued

20 June, 1935.]

Mr. J. T. WALTON NEWBOLD, M.A.

[Continued.]

"Private Manufacture and Trade in Arms" are without adequate foundation and cannot be supported.

Further, I would submit, the unstable foundations of its manufacturing prosperity in a period of grave crisis in industry, once again as during the trade depression of 1907-08, pre-dispose the capital and labour locally engaged in the engineering trades of Coventry to have an altogether unique desire to perpetuate a steady demand by the state for war-material.

As a Quaker, I fail completely to see how the elimination of the profit taken by absentee shareholders, as recommended by Mr. Noel Baker, whilst leaving the incentive of the abnormally high wages to be expected from making shells and grenades and aero-engines and aeroplanes and armoured cars and machine-guns, in factories taken over and run by the State, is calculated to strengthen the peace sentiment of Coventry.

As an economist who has been at pains to visit many factories engaged in the manufacture, or with plant suited to the manufacture, of munitions such as are made at Coventry, I have been struck for years and in all parts of Europe and the United States ever more forcibly by the immense amount of capital that needs to be sunk in machine-tools, many of them suited only to the execution of some particular kind of operation or even of some specific contract. The tendency throughout the arms industry has been to the ever more complete transfer of the factor of skill from the mechanic to the machine and so to make this form of employment progressively and proportionately less remunerative to capital and more so to labour. Very much of the machinery in course of rapid technical transformation and so the subject of replacement and of repeat orders I have found, in going round British arms factories, to be made actually by the workers of Coventry.

In view of this, I do not wonder that the trade unionists of that city should favour less the abolition of the manufacture of arms than its nationalisation. I do not wonder that they prefer as their political spokesmen those who leave to them the high wages and even hold out hope of making them higher by taking away the profit from their employers.

The tendency to transfer of skill from the mechanic to the machine is something which has been progressive and has facilitated the elimination of the master-gun-maker and the skilled artificer, so leading on to the concentration of the manufacture in great establishments wherein the standardisation of processes has followed the intense sub-division of labour down (and up) the scale of industrial organisation. This has led to the ever more numerous contacts of one group of capitalists in this industry with others at home and abroad. This tendency is inherent in the type of industry whose technique makes it available for the alternative manufacture of products of the highest metallic quality and the finest machine finish and so absolutely compels ever greater and greater calls upon and concentration of capital.

Because I am well aware that early writings of my own led many persons in the Peace Movement and in Labour circles to believe in the existence of "a War Trust" i.e. of a close "ring" of arms manufacturers internationally organised to make profit out of "armour-clads", and because the conditions under which I was writing in war-time made it impossible and undesirable to say many things about the armament firms and the governments which I could have said in time of peace, I desire to take this opportunity of correcting a bias against the truth which I feel I have helped to create.

When starting out upon my researches in 1912-13 I attached an altogether undue significance to two internationally owned companies interested in the manufacture of armour-plate.

One of these had developed in the nineties and, finally, had been organised and registered in this country in July, 1901, nominally "to carry on business as manufacturers of armour plate". Actually, it did no more than amalgamate the control of the Harvey, Charpy and Krupp processes for the manufacture of armour-plate. It became evident to me as I pursued my researches that it contented itself with regulating, renting and allocating the royalties from what were a series of American, French and German patents that were, I was later to discover, even then coming to have little technical importance.

The other was an endeavour on the part of the armour-plate and gun-producers of most countries to break the international monopoly control of nickel which the scarcity of this essential alloy of armour and of gun-steel had placed in the hands of a group of finance houses interested in the monetary and the munition-making metals:—silver, zinc, copper, tin and nickel.

One of these companies—which I found first and took to suggest the existence of a close "ring" of arms makers—was the Harvey United Steel Co., Ltd. It had obvious contacts with the United States Steel Corporation.

The other was the Steel Manufacturers' Nickel Syndicate Ltd. and that seemed to have especially close contact with the Bethlehem Steel Corporation, also of the United States.

Both these companies were registered in 1901 and seemed to have their headquarters in the London offices of and to be closely connected with Vickers Sons and Maxim, Ltd.

This year 1901 was that in which Vickers secured the lease of the Holland submarine patents, afterwards taken over by the Electric Boat Company of the United States.

I submit that the coincidence of these happenings was bound to lead to misunderstanding especially in view of the fact that the critics of the arms trade were all under the influence of a Liberal economist of pronounced Free Trade as well as Pacifist bias who attached immense importance to the artificial tendencies towards the formation of cartels and combines and of the influence of the persons promoting these on what he called "Modern Imperialism."

I published *How Europe Armed for War* and the whole of my writings on the arms trade whilst still under the influence of this Liberal economist (Mr. J. A. Hobson) and before the issue of the Report of the Federal Trade Commission of the United States on "Co-operation in the American Export Trade" made available in detail the facts re the existence of the quasi-natural monopoly of the metals to which the Steel Manufacturers' Nickel Syndicate was the consumers' defensive retort.

I refer to the far more closely-knit and certainly all-world combination profiteering out of war-preparedness, viz. "the Metallbank" and "the Metallgesellschaft," both of Frankfurt-on-Main.

The coincidence of the battles of Verdun and of the Somme caused me to consider the problem now and henceforth to be presented of the supply of the prodigious masses of metal and the vast stores of chemicals being used in the new warfare of fixed positions. Gone were the days of occasional naval actions with a relatively few broadsides and of intermittent military engagements in the field with a few hours of heavy cannonade and a few minutes of intensive machine-gun fire. To the *levy en masse* and the employment of the artillery train with which Napoleon I had ushered in the nineteenth century had been added all the mechanical, chemical and metallurgical technique applied to industry throughout a hundred years. Railway and automobile transport had made practicable the barrages of the Western Front and the advance of the submarine had necessitated by sea as well as on land a quantitative change in the demand for and the

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supply of armaments which had rendered inadequate the old system of supply of armaments and was, after the war, to complete the ruin of the old arms trade of which, seemingly, the pacifists are even yet not aware and which they seem inhibited by their outlook on the material world from being able to appreciate.

I submit to you that there is a profit to be made out of arms supply not only—or, for the reasons already indicated earlier in this Memorandum, so much—at the finishing end of the manufacture as by those who are engaged in the buying and selling of the metals. In war-time there is for these not so much competition in supply as in demand, and the material is, for the most part and in the very nature of the case, not capable of recovery and of melting down again as is the scrap-metal made available in peace-time. Then, there are those who are equipped to replace the vast and varied set-up of machine-tools upon which the wear and tear of war-time is far in excess of anything experienced in peace-time and which must at all costs be kept to the highest rate of production and degree of precision.

In normal times and, more particularly, in a period like the present there is a disposition to defer replacements of machinery and severely to ration supplies of basic materials used in the engineering and the chemical industries. If the motive of self-interest is as strong as the idealists allege it to be in others than themselves and those who think with them politically, then it appears to me that mining and metal interests, machine-tool makers and even trade union officials and rank-and-file trade unionists connected with the metal, machine and armament industries may be expected to favour orders for machine-guns rather than stand idle. In view of the success of the Peace Ballot in the arms making centres, however, this theory can scarcely be entertained.

Economic motives are powerful, but so also are the feelings common to capitalists and wage-workers. The president of the Disarmament Conference had three sons. He lost one in the War. The chairman of Vickers, Ltd., had two sons. He lost both of them in the War.

I suggest that experience has persuaded all thoughtful persons, regardless of their divergent or their conflicting economic interests, of the wastefulness and the horror of war, and that we may discount almost completely motives which may have had much influence in the days of the long peace that preceded 1914.

Eliminating the personal factor and passing from the subjective influence of shareholders and directors to the impersonal factor of the arms manufacture and trade *vis-à-vis* other aspects and as a part of the totality of the economic system, is it not reasonable to seek the motive of those who stress the importance of the arms manufacture in the theories which they entertain as to the place it occupies in the evolution of capitalism?

I submit that we have in the writings of Lenin on *Imperialism* and of the theoretical studies of the economists of the Soviet Union and of the Communist International (e.g., Varga's *Decline of Capitalism* published in 1928) the visible cause of the renewal in 1928 of the propaganda against the British and the American armament manufacturers. I submit that we have in the desire and the determination to check the recovery of British national economy from the economic and political crisis which reached its nadir in 1931 the revival of the literary offensive against Vickers-Armstrong, Ltd., in 1932. I submit that the Communist and sympathetic writers of *The Secret International*, *The Bloody Traffic*, *Patriotism, Ltd.*, and similar literature in this country and in the United States, have shown by the consistent suppression of facts concerning the armament of the Soviet Union the nature of and the motive of their bias. I submit that they have consistently sought to demonstrate the truth of their

contention that capitalism (and all variants of that system outside of the Soviet Union) is only being rescued from collapse by the intensification of war preparedness and the allocation of orders for war-material to the firms which they alleged to have been reorganised by or with the aid of the Bank of England. I submit that, from the logical extreme of Mr. Pollitt to the liberal draughts made by the League of Nations Union and the National Peace Council upon the literature of the Leninists, the case presented is not based on dispassionate and detailed economic study but follows more or less logically out of the political propaganda of the people who invented the story of "the bankers' ramp" and seek now a moral justification for a partisan onslaught on the private ownership of the banks and the heavy industries.

I am prepared to submit evidence to show the connection of this campaign against certain firms in Britain, the United States and France and Czechoslovakia with the theory and practice of the Soviet's First and Second Five Year Plans, and to that end draw your attention to the circumstances attendant on the arrest and prosecution of the employees of Metro-Vickers.

Were I appearing here as the representative spokesman of the Society of Friends I should need to inform you that I was committed to the principle of unilateral disarmament. Yielding to none in my endeavour to remove the cause of all war—class-war included—I am unable to subscribe to that particular method of applying my peace testimony to the world as I know it.

What I have seen and read and heard of the technique of arms and of arms manufacture in this country and elsewhere convinces me that the first problem to which you should apply yourselves is as to the best method to reorganise, reconstruct and maintain the means for the extremely rapid manufacture, should need arise, of aerial, anti-aircraft and mechanised army equipment as well as the launching and completion of ships to make good sinking by submarines and of ships to counter the submarines.

Since the Royal Arsenal and Small Arms Factory and the Royal Dockyards of Sheerness, Chatham and Portsmouth are survivals from altogether different conditions of warfare by sea and air and a very considerable part of the plant belonging to Vickers-Armstrong Ltd. and other engineering and chemical concerns contributory to the manufacture of war material is located in areas vulnerable to air attack there is need of an immense overhaul of the existing means of manufacture. The question must immediately arise as to how far it will be possible to raise the capital within the limitations of the present system of private enterprise conducted for private profit. I do not think that the money market will make available this capital as a commercial proposition upon the scale and in the time within which it is needful to collect and apply it to the erection of new workshops and the transfer of plant and labour to the west coast and the other areas beyond Birmingham and Sheffield in which the national reserve factories should be situated.

Sentiment being such as it is on the subject, it seems extremely improbable that Capital would provide the money with a view to profitable investment or that Labour would give of its best were there any reason to suspect that munitions were being produced other than with a view of the national and the imperial defence.

First and foremost, reserves of iron-ores from North Africa and Spain and of bauxite and non-ferrous metals should be accumulated forthwith. These should be adequate to enable the munitions to be made in the event of a partial blockade of these shores. Such reserves would not be an economic proposition from the standpoint of the metal and mineral industries and they should be bought and

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stored for an emergency by the government. Next, there is need of alternative coke-oven and gas-producer and similar auxiliary equipment to that already in existence at our steel plants. For commercial demand the existing equipment is at least adequate but the peril of explosions caused by aerial attack needs that non-economic reserve plants shall be provided or, at least, planned to be erected instantly at the expense of the government. Factories planned for swift erection; factories with the foundations *in situ* and the roads laid to them; factories built and needing only the installation of plant and the turning on of power; factories with the machinery already in and waiting only the movement into them of workers from the nearest centres by rail, road and motor-boat: these should be provided in every Pennine dale, in every Scottish glen and in every Welsh valley . . . at once.

Experts are agreed that we are not in a condition to make the munitions we should—I think we are soon going to—require, save at points where attack from the air would work appalling holocausts of life and awful havoc to communications—e.g., Enfield, Woolwich, Coventry, Sheffield, East Manchester, Derby.

Factories so split up into small units and located in the hills cannot be efficient competitors in the world market or contribute in any real sense to the economic reinforcement of our industries under peacetime conditions of commercial demand. Exceptions there may and, probably, will be; but, apart from the employment they will furnish during erection, they will do little to lessen the problem of unemployment in the distressed areas. The three great steel-works of which we have urgent need to complete the basis of the north-west coast arsenal might become eventual assets to the iron and steel industry but, if they were commercially needed, then there is no reason to suppose that they would still remain to be built.

The reserve arms factories should certainly be owned by the state and, I am inclined to believe, in the event of their being so set up, the existing arms manufacturers would ask to be relieved of their plants and would gladly withdraw themselves into the position of a second reserve of national munitions supply. I understand that they do not see their way clear to sink further capital in plants having a utility limited in time and in freedom of application to manufacture for commercial demand.

The manufacturers of machine-tools and all those who would be called upon to furnish structural steel, to execute the public works contracts involved in erection, as well as those dealing in the metals and the bases of chemical industry would need to be limited as to their profits but, otherwise, should continue owned and operated as before. Nationalisation of industry may be deemed desirable on other grounds. I am not in favour of its surreptitious introduction under the guise of national or even of imperial defence.

732. *Chairman*: There are one or two questions I should like to ask you, and the first one has reference to the two last paragraphs in your statement, where you indicate that in your view the reserve arms factories should certainly be owned by the state. The question I want to ask you is: Are you in this statement assuming that if the reserve arms factories are owned by the state the existing arms manufacturers should be allowed to continue their business, including export business?

Mr. Walton Newbold: I think the existing arms manufacturers have so little export business and the amount of home business that they would have under such circumstances would be so small that, whilst they might be allowed to do it, they are not so foolish as to wish to continue to lose money indefinitely, and therefore I cannot see them carrying on, and I cannot see them raising the money necessary to carry on.

733. *Chairman*: But then you would allow them to continue their export business?

Mr. Walton Newbold: I have not considered this question of the export business in great detail because I think that the whole talk about it is founded on misconceptions. I think there is very little export business indeed going on.

734. *Chairman*: Yes, but you realise, do you not, that if all export business were forbidden the result would be that the existing arms manufacturers would be closed down in the event of war?

Mr. Walton Newbold: I think so. I think it is highly probable that they would.

735. *Chairman*: And that would necessitate unilateral nationalisation in this country?

Mr. Walton Newbold: I think that in any case we shall have to reconstruct our factories at the expense of the government. I cannot see any other way out. I do not think the money can be obtained, because it is not a commercial proposition. After all, war is something which nobody wishes to have. Armaments are an insurance against a very problematical disaster, and war to-day, on the monstrous scale that it is waged to-day, is not something in the nature of the wars of the middle of the seventeenth century, the eighteenth century, or the nineteenth century.

736. *Chairman*: You have indicated that, although you are a member of the Society of Friends, you do not agree with them in their view as to the principle of unilateral disarmament?

Mr. Walton Newbold: Certainly not.

737. *Chairman*: Would you mind giving us your reasons in greater detail for that view?

Mr. Walton Newbold: I personally am a member of a body of people who generally do not fight. The problem was not presented to me in the last war because I was physically unfit for any work whatsoever of that character. The Society of Friends consists of some 25,000 people in this country, most of whom I suppose take this kind of view of unilateral disarmament; but in the late war one-third of them served with the Forces, one-third of them went into relief work and one-third of them took the opposite point of view; because the essence of Quakerism is not peace; the essence of Quakerism is the prompting of the divine spark within a man, and it may put one man in one direction and another in another. Now then, I am a democrat. This country has decided that it is going to have armaments of some kind or another. I can see no earthly chance in this country in my time of people being won to non-resistance. If we are to have armaments, then they must not be armaments or armament manufacture such as that with which this country found itself in 1793, in 1804, in 1854, when the whole national capacity was in chaos, when the arsenal failed us, when every gun contractor failed to give us the stuff. We must be in a condition where when we want to make the material we can make it efficiently. We must remember that this is a country in which people are pacifist in peace-time in vast numbers, but personally I do not think there is a non-resister on your Commission. There may be non-resisters in some places. There are a great number of people suffering from war weariness. There are a great number of people who wish to disarm this country, or at any rate a certain number of people. These people are not pacifists and deserve no consideration as such. Therefore we are reduced to some 25,000 people who in a crisis will still say, "I will turn the other cheek." If I were a Fascist or a Communist I might take the view that those 25,000 people were entitled to dictate to the 45 million people, but if I am a democrat I cannot take that position at all, and therefore I say that if you are going to fight, if you are prepared to have munitions, then get them ready in advance and do not let us have men killed, and wars continued, and costs piled up, and social services in perpetuity ruined, in the way they were at the outbreak of the last war by the kind of unpreparedness with which we were presented in 1914.

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738. *Chairman*: You said in your statement: "The tendency throughout the arms industry has been to the ever more complete transfer of the factor of skill from the mechanic to the machine and so to make this form of employment progressively and proportionately less remunerative to capital and more so to labour." Now I do not quite follow the argument in reference to "more so to labour." Is not the result the employment of less labour?

Mr. Walton Newbold: No, because constantly in an industry like that of keeping up-to-date the equipment of the Air Force and the continuous improvement of shells and shell fuses and the continuous improvement of guns and so forth, you are constantly requiring more and more machinery to be made, you are needing constant replacement, and you find that as war goes on progressively you get a greater and greater demand for labour, and that labour does not need to expend time very much in learning extra skill. The skill factor is going out but you are constantly having fresh machine tools coming in. I think there has not been anything like enough attention given to the effect of the peculiar conditions of war demand upon the kind of labour employed in war factories. The amount of labour employed in the actual production of the shell gets less and less; that engaged in the production of everything to make the shells gets more and more.

739. *Chairman*: You also refer to a tract "which is now the sole one of its kind to which the author attaches his name". I do not know whether it is one that we have or not; but have you any objection to giving the name of the author so that we can trace it?

Mr. Walton Newbold: *Hawkers of Death: The Private Manufacture and Trade in Arms*, by Philip Noel Baker.

740. *Chairman*: We have it; then I know what it is. Then you refer to the bribing of a Japanese official. What date was that? Was that 1910?

Mr. Walton Newbold: I have the report here in the *Japanese Weekly Chronicle* of 23rd July, 1914, an article on "Corruptive competition." Another strange chapter in the history of the naval scandals is brought to a close by the judgment of the Tokio Court in the Mitsui Vickers case.

741. *Chairman*: Was the date of the actual bribe 1910?

Mr. Walton Newbold: Yes.

742. *Chairman*: You say you have made exhaustive searches, inquiries, in reference to this question of bribery and this is the only case you have been able to discover?

Mr. Walton Newbold: The only provable case. There may be others.

743. *Chairman*: Are you referring to this country or abroad?

Mr. Walton Newbold: I have heard of a case of the firm of Skoda which has been accused of bribery in a certain state in South-Eastern Europe.

744. *Chairman*: If it is a matter which has not been mentioned before I do not think I want you to refer to it; but I only wanted to know when you were referring to your inquiries whether you had confined them to this country or not?

Mr. Walton Newbold: Oh, certainly not.

745. *Chairman*: Then you say: "Mr. Pollitt and I could both give you at least one example, but it would concern not an arms firm so much as a government." I can quite understand that you do not want to mention, nor do I wish to mention, the government, but I think the Commission would like to know the Government you are referring to, and therefore will you give the name to the Secretary?

Mr. Walton Newbold: Yes, certainly.

746. *Chairman*: And the same I would ask you to do with reference to the sources of information which you refer to at the bottom of the second paragraph of your statement, in which you say: "I am prepared to give to the President of the Royal Commission the sources of my information." You would add to that the Commission generally?

Mr. Walton Newbold: I think it is not desirable that we should mention any more than is necessary the officials of friendly powers who may have given information to any of us.

Chairman: But I think the Commission should be seized of the information to which you are referring. Those are the only questions that I have to ask you.

747. *Dame Rachel Crowdy*: First of all I should like to go back to a question which the Chairman has just asked, to ask Mr. Newbold if he would define to us what he considers comes under the heading of a bribe or bribery.

Mr. Walton Newbold: I consider that that is a matter which varies with the standard of morality of the country in which business is being done and the standard of morality of the people doing business. I can conceive that business methods in the country of Ruritania in South-Eastern Europe, which I visited some years ago in a semi-official capacity, are very much different, seeing that the editor of their chief economic paper followed me to the railway station and followed me along the platform at the railway station, pointing out that it would not be possible for us to get any contracts in Ruritania unless we were prepared to grease the officials and the people placing the contracts. I should imagine, knowing the United States pretty well at any rate, and having seen something of the conditions under which public works contracts were being given out in 1933, that they have a very much more liberal interpretation of what constitutes a fair business practice than would be accepted in a British court of law, let alone in leading Nonconformist circles in this country. More than that I would not like to say; and the question then arises as to how far a big employer of labour in this country is to forego export trade, or how far he is to forego his principles. After all, practically all commerce carried on outside of the few countries in North-Western and Central Europe is characterised by what would be called in this country grave irregularities, and I think we are face to face with this problem of how far we can retain our foreign markets if we are to resort to Christian or to legal practices. I think it is impossible to define—

748. *Sir Philip Gibbs*: Are you in favour of bribery?

Mr. Walton Newbold: No, of course I am not.

749. *Sir Philip Gibbs*: You seem to suggest it.

Mr. Walton Newbold: No, I do not. I merely try to face up to the facts of life.

750. *Sir Philip Gibbs*: Admitting bribery as one of them?

Mr. Walton Newbold: I think that it is a case where you have got to abandon the market.

751. *Sir Philip Gibbs*: And you would prefer, therefore, not to abandon the market and to indulge in bribery?

Mr. Walton Newbold: I think that if I was an employer of labour on a large scale I should have to think twice before I refused to resort to bribery to get a foreign contract.

752. *Sir Philip Gibbs*: Therefore may I take it that you are in favour of bribery?

Mr. Walton Newbold: I, personally, should prefer leaving the business rather than carry on.

753. *Dame Rachel Crowdy*: If I may continue, Mr. Newbold has not really quite answered my question. I probably put it badly. Having worked with a certain number of governments in Geneva, I should imagine that there are different interpretations of different labels for honour, but what I really want to know is not how the governments interpret bribery, but how Mr. Newbold himself interprets it, which is quite a different thing. I think he says that he only knows of one case of bribery. When he says that, what does he mean in that case exactly by bribery? That is what I am really trying to get at.

Mr. Walton Newbold: In this case it was a matter of an agent to the firm of Vickers desiring an order for a battleship for their clients, Vickers,

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and I believe that the sum of money which they made available was 400,000 yen, and thereby it is believed that they took the contract away from a more anciently established firm in the trade. I should call that bribery of the grossest kind.

754. *Dame Rachel Crowdy*: But is there anything else that you would include under bribery except *pourboire* of that nature?

Mr. Walton Newbold: Oh, many things—titles.

755. *Dame Rachel Crowdy*: And you have never come across any other case of bribery whatsoever in connection with your investigations into the arms trade?

Mr. Walton Newbold: I did not say that, *Dame Rachel Crowdy*. I said that I had never found another case which I could establish in a way that would be appreciated, I think, in a court of law.

756. *Dame Rachel Crowdy*: Do you include commissions, whatever one may call them, given to government officials who expedite the putting out of contracts to certain firms? Does that come under your heading of bribery?

Mr. Walton Newbold: Yes, if you can find a case and prove it.

757. *Chairman*: Yes; but what I think *Dame Rachel* is asking you is what kind of operation would you include in bribery? Of course, in this country it is a statutory offence.

Mr. Walton Newbold: Exactly.

758. *Chairman*: And it is defined; you know it is defined?

Mr. Walton Newbold: I know.

759. *Chairman*: And it is so widely defined that it covers every case of what is known broadly as bribery?

Mr. Walton Newbold: Yes.

760. *Chairman*: And you would accept that definition; I mean every means?

Mr. Walton Newbold: Exactly—in this country; but I have found, going around the world, that it is impossible for people in certain countries to understand that things can be like that.

761. *Chairman*: Quite. I think what *Dame Rachel Crowdy* wanted to know was whether you were confining your statement to one particular kind of bribery?

Mr. Walton Newbold: Oh no; I think there are innumerable forms of bribery and blackmail.

762. *Dame Rachel Crowdy*: And you have only come across this special case as proved?

Mr. Walton Newbold: This special case is absolutely proven. I think nobody has ever thought of challenging it.

763. *Dame Rachel Crowdy*: And you know of no other case as proved?

Mr. Walton Newbold: No.

764. *Dame Rachel Crowdy*: Then you say: "I am prepared to give to the President of the Royal Commission the sources of my information as to the activities of M. de Wendel, M. de Peyerimhoff and the firm of Messrs. Schneider & Cie. of Le Creusot. I am prepared to give to the public information as to the reason why those to whom Lord Cecil and, I am sure the same is true of Mr. Noel Baker, in all innocence of purpose, have gone for their facts, have sought to stir up in this country prejudice against the Comité des Forges de France and to name the identity of the persons concerned." I feel it is not indiscreet to ask this question as you said "I am prepared to give to the public information." Could you give us some of that information, or am I to assume that in a way it is answered in the later paragraph in which you say what you think was the origin of the propaganda against the armament manufacturers.

Mr. Walton Newbold: No, I do not think it is at all under that paragraph. I think that the matter comes under an entirely different heading.

765. *Dame Rachel Crowdy*: Then would you very kindly answer?

Mr. Walton Newbold: I am referring to the activities of the organisation which publishes *Patriotism, Ltd.*, and *The Secret International*. I am referring to the activities of an organisation founded by E. D. Morel, which has persistently pursued over a period of years the policy of criticism of French interests, suppressing facts, in my opinion, that are not relative to (i.e. do not support) the attack upon France. I think that we have to go back to the whole sordid story of the struggle for iron ore in Africa and in Spain before the War, when it was desired to keep the French from developing those wonderful resources of iron ore which are absolutely indispensable to the manufacture of gun steel. You can make shell steel out of basic iron ores. You cannot make gun steel and you cannot make the finer armament steels except out of the materials that are called haematite ore. Now, the Germans set out to establish a monopoly in the control of haematite ore in Morocco. My authority is *The War of Steel and Gold*, by H. N. Brailsford. That is the written authority. I have had it on many occasions from mining engineers who were operating in that part of the world. Now, I have watched this consistent attack on the attempt of Britain and France to prevent the monopoly control by Germany. I have watched the consistent attempt to sow ill-will between this country and France through alleging that the French, in particular, are under the influence of big interests. I have seen the consistent suppression of facts in the case of Germany and in the case of Russia, and I can draw no other conclusion myself than that these people are, either in woeful ignorance or in wilful error, seeking to drive this country and France apart and to prejudice the relations of this country with France. I do not know what reason may be behind it; it is not pertinent for me to say; but I do know, at every single point where I could block them, I have blocked them. The reason why I went to Motherwell in 1918 was to prevent the selection as a Labour candidate for a great steel-producing locality of a person of the character of E. D. Morel, and I think that the tradition of E. D. Morel is maintained by the Union of Democratic Control. That is the body to which I refer and the people to whom I refer. I think it is contrary to the public interest.

766. *Dame Rachel Crowdy*: Then I have one other question. You say: "I submit that the Communist and sympathetic writers of *The Secret International*, *The Bloody Traffic*, *Patriotism, Ltd.* and similar literature in this country and in the United States have shown by the consistent suppression of facts concerning the armament of the Soviet Union the nature of and the motive of their bias." May I ask you who is the author of *The Bloody Traffic*?

Mr. Walton Newbold: Mr. Fenner Brockway is the author of *The Bloody Traffic*.

767. *Mr. Spender*: Just to get this clear, you are in favour of the state taking over the manufacture of armaments, but on strategic, if I may so call them, and not on moral or economic grounds?

Mr. Walton Newbold: No, it seems to me a matter of indifference whether you kill a man with a state-manufactured gun or a gun made for private profit. My attitude is entirely based on strategic and economic grounds. It is a disagreeable necessity.

768. *Mr. Spender*: I understand that. You say, having made up your mind that armaments are necessary and that unilateral disarmament is impossible, you desire efficient and sufficient armaments, that pacifism is not promoted by inferior armaments?

Mr. Walton Newbold: I think that pacifism may be promoted by complete disarmament or else it may be promoted by efficient armament; but I cannot see any purpose that is to be gained by inefficient armament.

769. *Mr. Spender*: Now, with regard to these interests, whether the manufacture of armaments is undertaken by the state or by private firms, I suppose it would still be true that certain great

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[Continued.]

interests, the great basic industries, would have an interest, a motive, for desiring them to be kept at a high level?

Mr. Walton Newbold: Well, it all depends how far they are to be defined as armament firms. I went over Elswick in 1914, and I went over Beardmore's in 1914. At that time they were engaged almost entirely in armament work. I could not honestly say, after being over Elswick in the last six weeks, that they were exclusively engaged on armament work. It would be absolutely impossible to say, unless you were grossly mis-stating the fact, that a firm like the Birmingham Small Arms Company, or a firm like the English Steel Corporation, or a firm like Vickers-Armstrongs at Barrow to-day were primarily engaged in the manufacture of armament material. They are much more heavily engaged in the manufacture of material for commercial and luxury automobiles, they are much more engaged in the manufacture of all kinds of material for public works of one kind or another. No doubt when you all visit the representative factories of this country, as I have no doubt you are going to do, you will see what is being carried on there; but quite frankly, I believe that in the case of the Birmingham Small Arms Company you will receive information which will show to you that not one single department of their business has in the last five years done 10 per cent. of exclusively armament work. I could not give you the figures precisely. I do not know whether you desire them to be kept confidential. I do not know whether the firms desire it, but I have deliberately tried to find the proportion in case after case. Now, if you go to Woolwich Arsenal, of course you will find that everything there is at present war work, but if you go to the arms manufacturers, you find that you are dealing with general engineering concerns. I expect that you have had, or will have, the various catalogues. I have a collection of catalogues from practically every big engineering firm in Europe. I have got three typical examples here, if the Commission like to have them. As an economist who studies the development of the heavy engineering and steel industries, naturally I try to know something about them, and I have here one for Krupp, one for Schneider, one for Vickers. If you like to have them, you are welcome to have them, and if you like to have them for a dozen other works, I will provide them for you by to-night. The arms trade to-day is not an arms trade as it used to be.

770. *Mr. Spender:* I am afraid I did not quite make my point clear. It is suggested to me by what you said about the Comité des Forges. I do not pretend to have any intimate knowledge about that subject, but we have had a good deal of evidence to suggest that the agents who have been most active at armaments conferences at Geneva and elsewhere have not been appointed by the armament firms, but by the great industries, the shipping industry and the iron and steel industry, and it would seem to follow from that that whatever organisation you have, whether it is state or private manufacture, these great industries would still, if we are thinking of it in economic terms, have a motive for agitating as they do agitate?

Mr. Walton Newbold: I think that the nickel interests will always have a motive, because nickel is so enormously used in armaments, more, I believe, in armaments than in anything else. I should think that the zinc interests and the copper interests would also have to watch. I do not think it necessarily means that because they are watching what is happening at Geneva, they are doing more than watching the possibilities of their trade.

771. *Mr. Spender:* Well, I think that is possible. I am not suggesting that it is necessarily a serious interference. The only thing is that whatever organisation you have for making armaments, you would have a great number of interests who will naturally have a motive, or would like to see that trade active?

Mr. Walton Newbold: You will always have people like Mr. Shearer.

772. *Mr. Spender:* You may carry it to the making of boots and shoes?

Mr. Walton Newbold: You will always have people like Mr. Shearer, and he will probably get the sack afterwards, like Mr. Mulliner got the sack at Coventry Ordnance. Such people are to be found in all business life, and in all professional life, but I do not think it is quite reasonable to say that Mr. Shearer is typical, or to say that Mr. Mulliner was typical. I think they are exceptions. If you look all over the place and you find no more examples, you are bound to say they are exceptions; and that has been my experience.

773. *Sir Philip Gibbs:* You started by saying that "as a member of the Society of Friends I was concerned to remove the causes of war." Are you still concerned?

Mr. Walton Newbold: Exactly; but I do not think that this is removing the causes of war.

774. *Sir Philip Gibbs:* Because, in your general argument, you do not deal very much with the causes of war, but you seem to take it for granted towards the end of your statement that war is going to happen?

Mr. Walton Newbold: Yes, I think it is.

775. *Sir Philip Gibbs:* And you wish to make factories in every Scottish glen and in every Welsh valley?

Mr. Walton Newbold: I did not say that, if you will read—

776. *Sir Philip Gibbs:* I want to know. You seem to have abandoned, in this statement, any attempt to remove the causes of war.

Mr. Walton Newbold: I am not concerned, according to the terms of reference of your Commission, with the means of abolishing war. I could give that evidence before a commission if it was instructed to explore that subject, but your Commission has not been so instructed.

777. *Sir Philip Gibbs:* Then I wish to ask another question. You say you reject the theory that manufacturers contribute to the promotion of war scares. You state that, do you not?

Mr. Walton Newbold: Yes—not seriously.

778. *Sir Philip Gibbs:* If so, do you reject all the available evidence which is accepted by people like Lord Cecil and Lord Davies, and also the League of Nations itself which, in an early paragraph in a convention, took for granted that the private manufacture of arms was the cause of many abuses. Do you reject all that?

Mr. Walton Newbold: Yes, I reject it because I think it is based on a one-sided criticism of the people concerned. You have not yet, I think, heard the case for the defence; you have only heard the case for the prosecution. I represent neither party, neither the defence nor the prosecution, but I do always wish to hear the case for the defence as well as the case for the prosecution.

779. *Sir Philip Gibbs:* Certainly.

Mr. Walton Newbold: I think there have been some very loose statements made, and I think I heard a loose statement withdrawn in this very room yesterday afternoon.

780. *Sir Philip Gibbs:* Now, in your statement you rather suggest that the Mulliner case which has been referred to so often is not of very great importance because it was the rivalry between one firm and another in endeavouring to get an order; but do you therefore also reject the evidence of Mr. Winston Churchill and of Lord Haldane at the time, that the statements put forward by Mr. Mulliner were accepted for a time by the British Government and led to an increase in the British Navy which was afterwards found not to be justified by Mr. Mulliner's statement? Do you reject that?

Mr. Walton Newbold: I am not going to be drawn, Sir Philip, into an answer to that kind of a question. I am quite prepared to deal with the Mulliner case in great detail if you so desire, and

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to give you the facts; but I would draw your attention to the fact that the government is very often responsible for the things that firms get blamed for, as it is not always deemed in the public interest good that the government should appear either in national or in international negotiations, and I have repeatedly found cases where the people to blame were the government. The Coventry Ordnance Company were persuaded to go into the business by a government, and then, when the government was defeated at the general election, the next government did not pursue the same policy. I do know perfectly well that in the case of Mr. Mulliner, when trade got very bad in 1907 and 1908, he got extremely alarmed; so did the chairman of his company get extremely alarmed. I do not for a single moment imagine that the chairman of the company, Lord Aberconway, ever had any approval of the word of the managing director. I think it was contrary to the whole characteristic of him.

781. *Sir Philip Gibbs*: Do you think that Mr. Winston Churchill and Lord Haldane were misinformed when, in their books subsequently, like *The World Crisis*, by Mr. Churchill, he admits he was misled by Mulliner? Do you think he was misinformed?

Mr. Walton Newbold: I think he was misled by Mulliner, but I am surprised that the First Lord of the Admiralty should have been entirely trusting to Mr. Mulliner. He would certainly have other sources of information at his disposal. Probably he was misled by Mr. Mulliner, but I am sorry that Mr. Mulliner should have been the primary source of information for cabinet ministers. The Secret Service ought to have kept them informed of that, if it is any good at all.

782. *Chairman*: May I ask one question about Mr. Mulliner, if I am not interrupting, Sir Philip? We have heard a great deal about Mr. Mulliner, and apparently what Mr. Mulliner said was incorrect, but nobody has ever informed us whether they thought that Mr. Mulliner honestly believed what he said, or whether he was an inventive scoundrel. Has that ever been cleared up or gone into?

Mr. Walton Newbold: I do not think it has, because when I explored this question, I found that Mr. Mulliner was of much less economic and political significance than he had been made out to be. I found that the literature of the subject referred constantly to Tory directors, and suppressed all reference to Liberal directors, and that the whole thing was used as a piece of political propaganda by the Radicals against the Liberals in the government, and by the Radicals against the Tories, and I dismissed all that case as being mainly political backchat. I think that the importance of that whole matter was that up to 1896 the Vickers interests had not, so far as I know, gone out of the heavy arms industry into the light arms industry. About that time, they went into the light arms industry of Birmingham, and the light arms industry resented it, and nobody seems to have resented it more than Mr. Mulliner, who saw efficiency coming in the place of the methods you have described in terms in which I would rather not describe them. I certainly would not do it outside here, in view of the law of libel; but immediately you got a retort by the interests of Birmingham against the interests of Sheffield, in the ordinary course of commerce, and then you had, in the year 1898, a request by the government for extra facilities for armaments because of the extended Russian programme of the time of 1898, and there was a definite preparation to make guns, gun mountings, armour, and so on.

783. *Chairman*: I think you are going rather beyond what I wanted to know.

Mr. Walton Newbold: Yes, but you cannot explore this problem unless you look at the determining conditions.

784. *Chairman*: I only wanted to know whether it had ever been established whether Mr. Mulliner honestly believed what he said, or whether the contrary was the case.

Mr. Walton Newbold: I think not. I think that it just dropped, and has been resurrected later. 785. *Sir Philip Gibbs*: In answer to a question, you admitted that there had been a certain amount of co-operation in the case of Shearer, and that he had at least endeavoured to stir up trouble and to prevent a reasonable disarmament, on behalf of the Bethlehem Steel Trust, and then you went on to say that there will always be people like that. Now, would you agree that under a system of the private manufacture and trade in arms, there are likely to be a good many people like that?

Mr. Walton Newbold: No, I do not think that there are a great number of people like that.

786. *Sir Philip Gibbs*: You think they are limited, possibly, to one or two?

Mr. Walton Newbold: I have never been able to make up my mind whether Shearer was an agent or a blackmailer.

787. *Sir Philip Gibbs*: Well, it has been proved in public evidence that he received very high pay for his services by the American Steel Trust?

Mr. Walton Newbold: Well, possibly. It is quite likely. I think he did. I am not sure that it has been proved that the payments were made to him. I know it has been proved that he says that he was engaged by them.

788. *Sir Philip Gibbs*: It has been definitely proved that the payments were made, and he sued them for extra payments. That is a matter of public knowledge.

Mr. Walton Newbold: Well, it is quite possible that you may sue somebody but not get the money.

789. *Sir Philip Gibbs*: For extra payments.

Mr. Walton Newbold: The American legal procedure is such that I would not like personally to attach too much importance to the whole case. I have not explored Shearer, because Shearer was connected with a group of interests in America, and the whole thing was a matter of rivalry, of vested interests, as most of this is. The metal people attack the arms people and the arms people attack the metal people, and all the critics of the arms trade that I have come across deliberately, or else in ignorance, suppress the facts regarding anybody but the finishing end of the trade, and I have begun to wonder whether they are disinterested people at all.

790. *Sir Philip Gibbs*: Now, may I ask you if you have read the American evidence of the Nye Committee, as it is called?

Mr. Walton Newbold: I have read the evidence in so far as it has appeared in this country. I have not read it in detail, because I have not been able to get a full text.

791. *Sir Philip Gibbs*: Have you read sufficiently to make up your mind at all as to the evidence of bribery?

Mr. Walton Newbold: No. I think that the evidence, as it has appeared in this country, is so truncated that until I am able to get the whole of the evidence and read it for myself, I would rather not arrive at any definite conclusion.

792. *Sir Philip Gibbs*: I think that is very wise on your part, I must say. Now, excuse me for asking you a series of rather rapid questions, will you? I want to cover a fairly wide field. You say that in dealing with certain interests of the manufacturers, as far as your inquiries went, you could not find very much in the nature of a ring; you found that these arms firms were competing against each other—Vickers against Armstrongs, and so on; but do you think there is, at the present time, nothing in the nature of an armaments ring?

Mr. Walton Newbold: I have not expressed an opinion.

793. *Sir Philip Gibbs*: No. I am asking you that question.

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Mr. Walton Newbold: Yes.

794. Sir Philip Gibbs: What was the answer to that question?

Mr. Walton Newbold: My answer to that question is that I think probably the authorities preferred the closest collaboration in technique, in technical matters, between firms in certain lines of armament manufacture, but I have not found that there is any great tendency to combination in the aeronautical end of the industry.

795. Sir Philip Gibbs: That is perhaps as far as you know.

Mr. Walton Newbold: I do not think there has been anything like as much as there ought to be. Personally, I should like to see it much more closely concentrated and centralised than it is at the present time, because I think that they were lagging behind most terribly in every direction.

796. Sir Philip Gibbs: One of the witnesses before the McKinnon Wood Committee which inquired into the Woolwich industry—it was Colonel Dennis, who was the Director of Gun Factories—stated in his evidence that owing to a ring among the steel manufacturers of this country, it was impossible for Woolwich to control prices. Would you agree with that at all?

Mr. Walton Newbold: I think it would be impossible for Woolwich to control prices for the very high grade steels at that time. I think probably it would be impossible at the present time.

797. Sir Philip Gibbs: To control prices?

Mr. Walton Newbold: For the very high grade material. I am only speaking of the very high grade material.

798. Sir Philip Gibbs: Yes; you mean to say that there is still a difficulty in controlling prices?

Mr. Walton Newbold: Gun steel is of a very high quality of material indeed. It is quite different from other lines of the business. I think that is so. Mind you, I cannot prove it.

799. Sir Philip Gibbs: Now about this question of a ring, have you any knowledge at all as to the ramifications of a firm like Vickers-Armstrong?

Mr. Walton Newbold: Yes, I think I have.

800. Sir Philip Gibbs: You must admit that they are far-reaching.

Mr. Walton Newbold: I think that they are very far-reaching indeed, but I think that generally the ramifications tend to be in the finance. For instance, you will find that Vickers, Ltd., for the most part is only a holding company, though it does keep certain branches of the business for itself. You will find that the Armstrong-Whitworth Company to-day, Sir W. G. Armstrong-Whitworth & Company, is outside the armament business altogether, having sold its business, through various gradations of companies, to Vickers-Armstrong; but I believe it has material interests as a holding company. It is not an operating company, it is a holding company in armaments, and an operating company outside of armaments. I think that you will find great difficulty in understanding the lines of demarcation in ownership in operating and holding companies, and probably in finding, if you went inside the works, where one business begins and another business ends. I used to think, myself, that this was due to deliberate chicanery, but I think it is inherent in the nature of the industry.

801. Sir Philip Gibbs: Would you agree that there is a very close international co-operation among the arms firms of Europe?

Mr. Walton Newbold: Yes, I think it is true. It is all determined by public policy. I think that if a country has allies and associates, then naturally there are those contacts.

802. Sir Philip Gibbs: You would not say that there are associations of firms between countries who have tended to be hostile to each other historically?

Mr. Walton Newbold: I think there have been apparent cases of that, because I believe that before the War, both Germany and Britain were trying hard to draw Turkey away from the other, and I

think they were trying to draw Greece to one side or to the other. They were trying to draw Italy to one side or to the other. Now, I do not think it will matter whether you blame the arms firms or approve the arms firms. After all, if the Foreign Office says it considers it desirable that a certain power shall be armed or disarmed, shall be made an ally or forced to be an enemy, then the contractors, as agents to the government, ought to do what the government wishes them to do, or else refuse to handle the trade. It is a matter of public policy, not a matter that concerns the contractor. He is an agent.

803. Sir Philip Gibbs: I suppose you would admit, though, that in the private traffic in arms, these manufacturers do export arms as much as they can to foreign countries?

Mr. Walton Newbold: Yes, but I think it is a fact that they never export such material without having a licence from the Board of Trade, and I believe an authorisation from the Foreign Office has to go with it that it is not undesirable that it should go. I do not think they engage in any smuggling, for instance.

804. Sir Philip Gibbs: And you do not think that with their international associations, if they are refused a licence in this country they could provide the country ordering arms through one of their subsidiary companies in a foreign nation?

Mr. Walton Newbold: Well, take the case of Paraguay and Bolivia. I have very carefully investigated to find whether, since the outbreak of hostilities, either the British or the French firms have engaged in it. I am satisfied that they have not. What I am not satisfied is as to who may be the owners of the Belgian works that have sent material to the combatants. I am not satisfied as to the identity, nor have I been able to discover the identity of the American firms that have been sending material, or that it has been alleged may have been sending it. It is quite possible that those Belgian firms may be under French influence, it may be that they are under German influence, it may be that they are under British influence, but I think it is much more probable that they are *bona fide* Belgian concerns. But, mind you, I have no particulars about it, and therefore I prefer not to say either yes or no.

805. Sir Philip Gibbs: I would just like to refer for a second to the case of M. de Wendel. You seem to have a considerable knowledge of that. Am I absolutely wrong in thinking that the Wendel family is very much distributed on both sides of the French and German frontier?

Mr. Walton Newbold: You are perfectly correct. That frontier has been in dispute for 300 or 400 years. The mines and the iron works there are older than those of Merthyr Tydfil. They go back to as far as the period of the Weald. They have sometimes been on the one side of the frontier and sometimes upon the other. The de Wendels have had to operate under Germany, they have had to operate under France, and I do not think anyone has ever suggested that they made either the Franco-German War or the Great War. They were simply the victims; but the de Wendels are not makers of armaments.

806. Sir Philip Gibbs: No, but they make the steel, of course.

Mr. Walton Newbold: They make the steel and they make mainly a steel that is no use in the manufacture of guns.

807. Sir Philip Gibbs: You say: "I take this opportunity of correcting a bias against truth."

Mr. Walton Newbold: Yes.

808. Sir Philip Gibbs: And as a matter of fact a considerable part of your statement is a denial really of a good deal of your life's work, is it not?

Mr. Walton Newbold: Exactly. I am never afraid when I have found facts to be insufficient.

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809. *Sir Philip Gibbs*: I think you are very brave in taking that position, and in saying so quite frankly.

Mr. Walton Newbold: I feel that I am responsible, because this pamphlet, *The War Trust Exposed*, was published in 1913, and *How Asquith helped the Armour Ring* in 1914. The next one that I published was published under the Defence of the Realm Act, and great parts of my material had to be left out because the book would simply have been suppressed at once, even if I had put the material in; and I do know this, that if you start with a bias against anything, especially when you are young and enthusiastic, you find what you want to find. As you grow older, you are compelled to recognise that your first enthusiasms do not justify you in this selection of facts. Now, I do object, as an economic historian, to the selection of facts to prove a case. I am primarily a historian. I am more interested in history than I am in any other subject, and I absolutely refuse to prostitute history to propaganda.

810. *Sir Philip Gibbs*: Now, you say that there was a renewal of propaganda in 1928 against the arms manufacturers and against people like Vickers Armstrong and so on, and you suggest that really there is a Communist influence behind this, that it is an attack really directed by Communist sentiment, and so on, do you not?

Mr. Walton Newbold: I think that there are three lots of influence, and I think that the most aggressive is certainly Communist and semi-Communist.

811. *Sir Philip Gibbs*: Well, how do you reconcile the fact that there is a considerable amount of uneasiness in the minds of people like Lord Davies and Lord Cecil, and other very highly respected people who cannot be accused or suspected of being under Communist influence?

Mr. Walton Newbold: Well, I do not for a moment suppose that those two gentlemen are, but I think they are mistaken enthusiasts without first-hand information as to the facts, and the fact that they are peers of the realm does not in the least degree suggest to me that they are worthy of any more attention than ordinary human beings.

812. *Sir Philip Gibbs*: No; but it would rather tend to suggest that they were not tainted with any Communist philosophy?

Mr. Walton Newbold: If you will notice, I very definitely state in the first part of my memorandum that I refer to *bona fide* pacifists, amongst which I include Mr. Arnold-Forster. Mr. Noel Baker might be included, and Lord Cecil, but I hold that the other people are not *bona fide* pacifists, because they certainly believe in fighting, both internationally and within the country; but they all run together like a herd.

813. *Sir Philip Gibbs*: You make use of a phrase in which you say, "Were I appearing here as the representative spokesman of the Society of Friends" you would be bound to support, perhaps, a unilateral programme; but may I suggest to you that having changed your opinions with regard to your war books, you seem also to have changed your opinions with regard to the Society of Friends?

Mr. Walton Newbold: As a Quaker, certainly, I would be prepared to disarm, but I think that the country has definitely made up its mind that it is not going to disarm, and therefore I have to consider whether I am accepting the will of the majority or going forward with my own personal opinion. If I go forward with my own personal opinion, then I hold that I am not accepting the will of the majority. I must choose one or the other, and I say quite frankly that if it comes to that I stand by the will of the country as a whole.

814. *Sir Philip Gibbs*: I have only one more question, and that is that in your final paragraph in which you sum up the whole case you seem to accept, to my great distress, as an axiom that we are going to have another very terrible war, and that, therefore, it is necessary to increase all our factories even as far as the Welsh valleys and the Scottish glens.

Now, do you feel that you are sufficiently provided with evidence on that subject to—?

Mr. Walton Newbold: Well, I feel there that my country has pledged itself—

815. *Chairman*: I think we had better not go into that, Mr. Newbold.

Mr. Walton Newbold: I am entirely in your hands.

816. *Chairman*: I mean, it may be your opinion, but still, we hope it is an inaccurate one; that is all I can say.

Mr. Walton Newbold: Only history can prove which of us is correct.

817. *Sir Thomas Allen*: Reverting to the first question put to you by Sir Philip, while you are concerned to remove the causes of war you are also convinced that while wars are probable and possible we should have the most efficient and effective services at the national disposal to ensure our defence and security?

Mr. Walton Newbold: Yes.

818. *Sir Thomas Allen*: Reading your evidence, and listening to the replies, more particularly the reply you gave to Mr. Spender this morning, I am rather exercised in my own mind at the moment as to whether you favour the abolition of private manufacture and full state manufacture, or are you in favour of the continuance of both systems?

Mr. Walton Newbold: There I feel that it would be better to let the private industry atrophy rather than deliberately to abolish it. It all depends how far the country is prepared to face up to the implications of collective security. If we are going to face up to the implications of collective security, then I think we should go whole-hog into it; but I do not think the country will do. Personally I regret the principle of having to go and fight for the League of Nations; I think it is wrong; but the country has decided in favour of it.

819. *Sir Thomas Allen*: Your study of armaments spreads over a very long period of years. Could you tell us what opportunities you have had on your visits to the various factories, both at home and in the United States and in Europe, of studying the armament business from a sales point of view as distinct from manufacture?

Mr. Walton Newbold: I have not looked at the sales side at all in so far as I have visited the factories, but I have had other sources of material which I will be prepared to hand in in writing to the Commission.

820. *Professor Gutteridge*: The main questions I wanted to put to you have already been put by Mr. Spender, but I think in fairness to you I should like to call your attention to an inconsistency in your evidence here. Have you got your evidence in front of you?

Mr. Walton Newbold: Yes.

821. *Professor Gutteridge*: Will you look at the tenth paragraph: "I have investigated the economic activities of M. François de Wendel both in Lorraine and in Paris. I have done the same in the case of M. de Peyerimhoff. M. François de Wendel has never made a gun in his life. His firm has never made a gun. It would be as reasonable to charge Sir Andrew Duncan or Sir William Larke of the British Iron and Steel Federation with being interested in the arms trade as to charge M. François de Wendel." You are saying there that it is not fair to attack M. de Wendel because he is not an armament maker?

Mr. Walton Newbold: It is not fair to deal with him as an armament maker.

822. *Professor Gutteridge*: Now will you turn to the later paragraph in which you say: "I submit to you that there is a profit to be made out of arms supply not only—or, for the reasons already indicated earlier in this memorandum, so much—at the finishing end of the manufacture as by those who are engaged in the buying and selling of the metals."

Mr. Walton Newbold: Exactly.

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823. *Professor Gutteridge*: Well, how do you reconcile those two statements?

Mr. Walton Newbold: I am dealing with a pamphlet which does not deal with the buying end of the business at all, but only deals with the finishing end of the business, and the point that I am trying to make out through my whole evidence is that the critics of the arms trade in one large group to which Mr. Noel Baker belongs always regard as armaments only the finishing end of the business, and I have tried throughout the whole of this memorandum to point out that there are four profits in armaments, four potential profits.

824. *Professor Gutteridge*: Would you mind enumerating them?

Mr. Walton Newbold: Yes. The finishing end, the supply of the metal and chemical bases, the machine tool supply, with which one might put general contracting as well—erection of works, and so on—and there is also the element of the actual labour involved, both by hand and by brain. Those are the four interests that I would name; but the pamphlet with which I was dealing only refers to one specific interest, and it does convey the suggestion to the reader that M. de Wendel is engaged in arms manufacture, but he is not engaged in arms manufacture and it is characteristic of the loose thinking and general loose talking of these people to suggest that he is in the arms trade at all. De Peyerinhoff is in coal, not in steel, much less arms and engineering. Armaments is engineering and chemistry.

825. *Professor Gutteridge*: Do you stop at the fourth category? What about the man that makes the boots for the soldiers, their uniforms?

Mr. Walton Newbold: If you like to go as far as that, of course. You cannot contract out of the system, but that is not within the definition of the arms trade as I have ever seen it interpreted.

826. *Professor Gutteridge*: Do you think there is any precise definition of the arms trade? That is the point I am putting to you.

Mr. Walton Newbold: No, absolutely none.

827. *Chairman*: I have been asked to put some questions to you, and I will read them to you. The first is this: Would the witness give any information as to whether there is any international ring to-day either of armament manufacturers or of firms producing the essential materials for armament construction? Is there any international ring, the inquirer wishes to know.

Mr. Walton Newbold: I would say that there is no world ring. I would say that there are certainly signs of local rings. I know that in the case of Vickers they have an interest in Spain. They have certain holdings. How deep I have not been able to find. You will probably be able to elicit; I cannot. They have certain holdings in Japan, I believe, but I am not certain; but you have not anything like a global ring of the arms manufacturers. You have Schneider in certain countries, you have Krupp in certain other countries, and I have no doubt that many of these firms—and I think it is more true of dictatorships than it is of democracies—may have ramifications of which we do not know, and which you will find exceedingly difficult to discover. I know I often find something that I assume is probable worthy evidence of the existence of one, but if you asked me what my opinion was I do not think I would like to give it here, because I am still working on it. I do not think it would be accurate information. Now, if you come to the metal trusts, I think there is much more evidence there of an all-in metal trust, and I think that there are many market arrangements in the metal market; but there again you will have to receive evidence from somebody who knows not only the theory but the practice of the metal trade, and if I might recommend it, I would recommend that you should try to find that out. I think that there is some indication of arrangement between Du Pont, the Imperial

Chemical Industries, the Kuhlmann in France. I do not know how far the I. G. Farben-industrie is still in such arrangements. I think it would be worth while exploring that, but I cannot say out of my own knowledge that such and such a thing is true. It used to be true before the war, but whether it has ever been true since the war I would not like to say. 828. *Chairman*: The next question is this: Would the witness agree that nickel and high speed alloys, haematite iron ore, silica firebricks, constitute the main raw materials or intermediates for the construction of armaments still? Can the witness give any information as to who controls these raw materials in the British Empire?

Mr. Walton Newbold: I would not like to give any off-hand statement on that subject, but I think it is true to say that you have got about 40 per cent. of them there. I think there are many more, but there again it would be better—

829. *Chairman*: 40 per cent. of them?

Mr. Walton Newbold: 40 per cent. of the different categories. I do not think that that is by any means wide enough.

830. *Chairman*: Now, the next is this: Would the witness agree that there is great technical improvement in machines for making armaments, and that, say, since 1914 all or most of the machines and machine tools have been improved and replaced?

Mr. Walton Newbold: I would be willing to say that since 1914 in most of the arms factories there has been very considerable replacement. As a matter of fact, it would be perhaps from 40 to 60 per cent. I think that there is still a lot of old plant of pre-1914, or rather I would say of pre-1915, because there was not very much change, I understand, up to 1915. I think that Dr. Addison has got hold of the right end of the stick, but I think one must say that to-day the British machine tool manufacturers are in a position to supply the needs. There is an association, but I am rather of the opinion that though there is an association it does not operate so much as a ring as some members of it would like it to do. That is the information I have received. I have tried hard to find out the position in the machine tool business, because it is rather alarming to go through certain factories—

831. *Chairman*: I think you are really going beyond what the inquirer wanted to know. I think the question is confined to the point as to whether there has been great technical improvement in machines since that date. You agree that?

Mr. Walton Newbold: Oh, yes, great technical improvement.

832. *Chairman*: Then the fourth question is: Can the witness state how many arms firms have their works at Coventry at the present time, and what is the percentage of armament production there? Does the witness in his statement refer to the machinery for making tools in Coventry?

Mr. Walton Newbold: I refer to the machinery for making tools. I refer to the machinery at present engaged in the manufacture of aeroplane engines, which may be for war or for other purposes. I refer to the machinery that is available there for the making, if need be very quickly, of armoured cars, for the production very quickly of machine guns, which are very closely akin in their home land, and their home works, to the manufacture of machines and of sewing-machines—the machine tool and the sewing-machine moving together across many years. 833. *Dame Rachel Crowdy*: If I understood you rightly, you said that you had no knowledge of illicit exports of arms from this country to other countries did you not?

Mr. Walton Newbold: Yes.

834. *Dame Rachel Crowdy*: Have you by any chance in your very wide experience come across anything in the nature of exports of parts to other countries where they may be assembled? I mean practically completed parts, and I am thinking particularly of countries to which export from British firms at a given moment is not advisable?

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[Continued.]

Mr. Walton Newbold: Well, there again it is a matter of definition as to where it is advisable.

835. *Dame Rachel Crowdy*: I mean in a case where there is an embargo or order by government, or where a very strong line taken at Geneva by the British Government delegates would imply that we in our country could not export arms to country X?

Mr. Walton Newbold: I do not think I could say that I have found such evidence. I think it is probable that parts are sent out that, when they arrive in a foreign country, might be for commercial use or might be for arms use, but I could not say that I have seen evidence of it going on as a deliberate thing.

836. *Dame Rachel Crowdy*: I mean definitely to evade regulations, to keep within the letter of the law but not within the spirit of the law?

Mr. Walton Newbold: I think that to-day, when there is so much nosing round to find out cases of that sort, that the big firms would be very unwilling to do it. Now, what I do know is going on is that there are a certain number of what you might call free traders at work, people who

(The Witness withdrew.)

Mr. ARCHIBALD FENNER BROCKWAY, representing the

840. *Chairman*: Mr. Fenner Brockway, I understand that you are prepared to submit evidence on behalf of the Independent Labour Party?

Mr. Fenner Brockway: That is so.

841. *Chairman*: Then I will ask you first of all who prepared this statement? Did you prepare it yourself?

Mr. Fenner Brockway: The statement was prepared by myself. I was asked to do it because I had made some study of the subject.

842. *Chairman*: Has it been submitted to any body representing your Party, or have you been merely instructed to do it on their behalf?

Mr. Fenner Brockway: I have been instructed to do it on their behalf, but it has been endorsed by the Executive of our Party.

843. *Chairman*: How would you prefer to deal with the matter? Would you like to read the evidence, or would you like to go through it and make comments as you want, without reading the whole of it?

Mr. Fenner Brockway: The evidence is rather long, and I appreciate that it covers some points with which you have already dealt. I would be prepared, if you should agree, to adopt the course of summarising it and drawing attention to particular points.

844. *Chairman*: It does not mean a long speech on each point?

Mr. Fenner Brockway: I think it would be shorter than reading the whole document.

845. *Chairman*: I do not want to stop you.

Mr. Fenner Brockway: We make, in this evidence, a series of charges against the British armament firms. We charge them with fomenting war scares, with persuading their governments to pursue warlike policies in order to increase orders for armaments. We charge them with bribing government officials. We draw attention to the fact that they appoint government officials, after retirement, to good positions on their directorates. We charge them with disseminating false reports concerning the military and naval programmes of other countries in order to stimulate orders. We charge them with belonging to organised international rings and trusts to play off one country against another in order to force up prices. We charge them with having produced war materials for other countries which in time of war have been used against the British armies. We charge them with prolonging wars by supplying materials to both sides. We charge them with having provided war materials to governments engaged in war, even when the war has been condemned as an act of aggression by the

are buying and selling aeroplanes and who are trading these in Latin-America and elsewhere. I constantly hear of cases, but I cannot put my finger right down upon them and say, "So-and-so is doing it."

837. *Dame Rachel Crowdy*: Foreign middlemen, you mean, buying from British firms?

Mr. Walton Newbold: Not only foreigners. I think there are some Britishers doing it.

838. *Dame Rachel Crowdy*: In foreign countries?

Mr. Walton Newbold: Doing it in foreign countries, yes. I heard of a case the other day, but I am sorry I have not his name, and I think in the circumstances in which it was told me I should not be justified in disclosing it; but I think it is a matter you should explore. I think that that is going on rather widely, but it is not, I believe, done by the manufacturers so much as by what you might honestly and properly call traders in war material; but then, they would trade in anything. It is not specifically a war trade.

839. *Chairman*: We are much obliged to you, Mr. Newbold. I think that completes the examination.

Independent Labour Party, called and examined.

League of Nations, and we particularise the cases of Paraguay in South America and Japan in the Far East. We charge them with having provided war materials to the Chiang Kai Shek Government in China for its war against the Chinese Soviet Republic. We charge them with having solicited orders in Germany in violation of the terms of the Versailles Treaty, and of having recently supplied Germany with aeroplane engines.

Having made those charges, and given in each instance some evidence to support them, we say that this type of activity is a menace to the peace of the world, and that it ought not to be tolerated by governments, it ought not to be tolerated by peace-loving peoples.

But we want to emphasise the point that in engaging in activities of this kind, the armament firms are pursuing the ordinary methods of business. We do not regard armament firms as being particularly wicked; they are exactly as other profit-making concerns. They must sell goods; they must secure markets. In this case, the markets depend upon international tension and national rivalries. They must create those conditions, and we emphasise the point that, so long as the armaments industry is run for profit, as a profit-making concern, those dangers will continue.

We want, however—and I draw your attention to paragraph 8—to emphasise the distinction between armament firms and ordinary industry. We say in that paragraph:

"The armaments industry . . . is engaged in the production of goods for the purpose of death. Those goods are the most efficient which enable the most human beings to be killed with the greatest ease. The success of salesmanship and publicity is measured by the extent to which these death-dealing goods are spread over the world. The conditions to be created for good business prospects are international tension, circumstances threatening war, and the intensification and prolongation of war when it occurs. The purchasers of the goods may be enemy governments which will use them to decimate the fellow-citizens of the armament-makers. The rings and trusts may be used, to quote the League report, "to play off one country against another" in armaments rivalry and to hold governments up to ransom by extorting higher prices. These differences naturally invite the question whether the community should permit this industry to remain on a profit-making basis and in its search for markets to encourage conditions endangering peace."

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[Continued.]

and we give the answer at once, that the community ought not to permit that. We submit that it is urgently necessary to end the motive of profit-making in all war preparations.

Then, Sir, we go on to point out that there are certain difficulties in applying that principle, which may generally be recognised as admirable. In the first place, the war industries are also peace industries. The firms which are producing war materials are quite extensively producing peace materials and, secondly, many peace industries are potential war industries. Certain of them, like the Imperial Chemical Industries, are mostly engaged in producing articles of peace, but also have a side to their activities which is the production of chemicals for war. Secondly, we point out that the arms industries are very closely linked with other industries. In paragraph 11, we instance Vickers, which is associated with electrical, rubber, steel, iron and coal companies, and we specially emphasise their very close connection with the banks. Thirdly, we point out that the British armament firms have very extensive international connections. If one takes Vickers, we list in paragraph 4 its associated companies, not only in the British Empire, Canada, Ireland, New Zealand and India, but in Spain, Italy, Rumania, Holland, Poland, France, Japan and South America. In the case of the Imperial Chemical Industries, we show in paragraph 12 that it has twenty-one foreign alliances.

I think it is just worth pointing out, Sir, that we were all shocked last week by the disaster in a munitions factory in Germany. We were shocked not merely by the loss of life. We were alarmed by the amount of war preparations which it indicated. That German firm, the Westphalian Anhalt firm, is one of the foreign allies of Imperial Chemical Industries in this country. We find it listed in the document to which I draw attention, Exhibit 461 in the Proceedings of the American Arms Inquiry. The Imperial Chemical Industries has twenty-one such foreign alliances, 8 in Belgium, 5 in France, 3 in Germany, 2 in Italy and 1 each in Norway, South Africa and Switzerland. It has, in addition, foreign investments in 30 companies: in the U.S.A. 6, Belgium 3, Australia 3; 2 each in France, Czechoslovakia, Germany and South Africa; and one each in Austria, Spain, Hungary, Canada, Rumania, Argentina, Chile, China, India, and Japan. We point out that therefore it is not a simple matter of just nationalising an industry in Britain: there is the very difficult problem of all these international connections and we stress the point that it is very difficult to separate the war industries from other industries. The war industries are embedded as a part of our whole economic system. We adopt the phrase that the economic structure of capitalism is one and indivisible.

Having stated that, we turn to the remedies which that brief survey would indicate as necessary. We suggest that nationalisation of peace industries is a good phrase, but in itself does not get us very much further. We have to ask which industries are to be nationalised, we have to ask what about the industries under British control which are abroad; and in particular, Sir, I would like to draw your attention to paragraph 13, in which I think we do make a new point about the danger of pursuing a policy of nationalisation alone:

"It is clear that a proposal to nationalise war material industries within Britain would not be enough. Recommendations to be effective must also deal with the participation of British concerns in the war industries abroad. Even if an international rule were adopted, say, on the initiative of the League of Nations, that industries engaged in the production of war materials should be nationalised in all countries, the problem would not be solved. The difference in the case of the small nations would, under present conditions, be more apparent than real. The governments of such nations would only be able to nationalise

their war industries by raising international loans. Such loans would be floated in London, Paris, New York and other financial centres. The financiers behind these loans, and the governments supporting them, would in fact be the owners of such industries.

This opens up dangerous prospects of small nations being used as the pawns of the big powers, which would naturally utilise their economic resources to win prospective allies. A new form of Economic Imperialism would be developed in which the governments of the big powers would be directly involved in maintaining the efficiency of the nationalised war industries of their smaller allies. It would obviously be in the interests of the associated 'nationalised' industries to exchange information regarding new processes and new destructive instruments and chemicals. Rivalries would probably develop between the different groups of big powers and satellite nations. Political alliances would be supplemented by war-industry alliances. This is not a reassuring prospect. Any remedies to be effective must clearly deal with the question of international loans for war industries."

We therefore proceed to make a series of very drastic recommendations, more drastic, I think, Sir, than any that have yet been brought to your notice. I would say that unless recommendations of this character are carried out, it is impossible to remove the profit-making motive from the war industries; and these recommendations apply, not merely to the nationalisation of British industry, but to the problems which I have indicated in the relations of British industries abroad. First we suggest that:

"(a) All establishments in Britain—factories, mills, workshops, laboratories, etc.—which are primarily devoted to the production of war materials shall be nationalised, and shall be placed under a Minister directly responsible to Parliament. A workers' council, representing all grades of workers employed, shall be responsible for the control of the working conditions in these establishments. (b) All British concerns owning establishments abroad which are used for the production of war materials shall transform them by a given date into establishments for the production of peace goods, or else disband them. (c) All British concerns which have arrangements with companies abroad for the production or sale of war materials shall end them by a given date. (d) It shall be made illegal for any British citizen after a given date to own or to hold shares in any industry, either at home or abroad, which is primarily devoted to the production of war materials. (e) If orders for war materials are given by the government to any concern not state-owned, the work shall be done on a costings basis without profit. (f) The export from Britain of materials for war purposes shall be absolutely prohibited. (g) No British firm, bank, or individual shall participate in loans for the purpose of the production, transport, or sale of war materials in any part of the world. (h) It shall be a criminal offence for any British citizen to solicit for orders for war materials or, on behalf of any firm, to attempt to exert influence against any proposals which may bring about a reduction of such orders. (i) Committees of workers shall be appointed in all establishments concerned at any time in the production of war materials to assist in ensuring that these regulations are carried out. A national committee representative of the workers' organisations shall be appointed for a similar purpose. (j) The British Government, having adopted these methods to eliminate profit-making from war preparations, shall do its utmost to get them adopted internationally."

We agree that those are drastic proposals; but we see no other method by which the profit motive is to be taken out of the war industry; and while it remains in the war industry, we believe the war industry will be dangerous to peace. I think, Sir,

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that that is a summary of the evidence which we bring before you.

846. *Chairman*: I do not quite follow the reasoning in paragraph 13, because—take the present conditions—the small governments have to buy their arms, and in order to buy their arms they have to raise a loan. Then I do not see what difference it makes. You say that, given nationalisation, they will have to raise a loan, and therefore nationalisation is perhaps desirable; but the condition of things so far as raising a loan is concerned is the same whether nationalisation is adopted or not, is it not?

Mr. Fenner Brockway: I should submit this, Sir, that at present the small nations have two methods by which they secure arms: either they order from an armaments firm in Great Britain, Schneider in France or Skoda in Czechoslovakia, or else one of those big armament firms has works actually in the territory of the small nation. That quite frequently happens. That is the present method. It is undoubtedly true that they very often have to raise loans for the purchase of armaments. Those loans are now frequently raised in connection with the armaments firm which is supplying the order. In France, more than in this country, the armament firms have their own banks which make the loans, and the loans having been made by their own bank, they get the order. I have no evidence that this is the case in this country, but the armaments firms take the initiative in trying to raise the loans. The American evidence shows cases of that with Vickers. Vickers were asked to raise a loan by the Electric Boat Company in America. Vickers replied that they could raise a loan for the purpose of an order in this country, but they could not very well raise a loan for the purpose of orders in America. Now, the loan in these cases is made through the armaments industries. If you have your armament industries nationalised under government control, the initiative in the loan, the support of the loan, the backing of the loan, will be more closely a matter of governments, and therefore governments are likely to have a control of the small nations to a greater degree than at present. That is the point I was trying to make.

847. *Chairman*: Now I will go back to the beginning of your statement, if I may, and ask one or two questions about what appears there. You have formulated a number of charges and these charges, I understand, relate to what may generally be called abuses.

Mr. Fenner Brockway: Yes.

848. *Chairman*: Now take Mr. Mulliner's case. I am troubled about poor Mr. Mulliner, because I do not quite see that both sides of the question have been considered. Of course, if Mr. Mulliner honestly believed what he said, it was a misfortune that he went and reported it; it was not an abuse. Has anybody ever tried to find out whether Mr. Mulliner did believe what he said, or whether he was inventing? Of course, if he was inventing, I agree it was an abuse, but if he honestly believed it, you might say he was a mistaken patriot?

Mr. Fenner Brockway: Yes, it is a little difficult to read men's minds in that way.

849. *Chairman*: Then I do not know that you ought to accept it as an abuse until you have settled that question?

Mr. Fenner Brockway: Except that I would put this further point, that Mr. Mulliner was very disappointed when his own firm did not get any of the orders that were given, and we should not have known anything about this if it had not been for Mr. Mulliner's own letters in *The Times*, which told the story; and I will only say that those letters in *The Times* do at least suggest that this was being quite deliberately done for the purpose of getting orders. I will not put it more strongly than that; I cannot.

850. *Chairman*: I mean, it was deliberately done, no doubt, because he went intentionally. However, I will not go into it any further, as nobody has

inquired into it. Now, the question about the admiral in Japan, again that, from our point of view, of course, is an abuse; any bribery is an abuse, of course; but from the point of view of prevention of war or encouraging war feelings and preparations, there is a great difference, is there not, between a case where an order was created as a result of a bribe, and where an order, having been advertised, there is great competition between different firms to get the order, and then a bribe is given to secure the order to one company rather than to another. This latter form of bribery does not increase the amount of effective armament.

Mr. Fenner Brockway: No, but I would suggest this, Sir, that if relations develop between officers of an armament firm and the officials of a government department which enable bribes to pass between them, you have a relationship there which is not likely to end there, and which may easily mean that the officials of a government department, having had those relationships with an armaments firm, will encourage the giving of orders or the getting of orders. I think that is very likely from that relationship.

851. *Chairman*: In paragraph 4 you refer to the relation of bribery to what you call a subtle method. It is not bribery, but it is a subtle method. Now, is "subtle" quite the right word? I understand "subtle" to be something that you take trouble to conceal; I do not know whether you accept that view of the expression; but whatever is done is done quite openly in this matter, is it not?

Mr. Fenner Brockway: Well, the appointment of government officials who have been responsible for giving orders from their departments to the directorate of the armament firms—that is open. What is not open is what may have preceded that.

852. *Chairman*: Yes; but that is a guess?

Mr. Fenner Brockway: Well, it is not quite a guess. I mean, I want to suggest first to you, Sir, that this thing is obviously not desirable.

853. *Chairman*: Oh, that is another question altogether.

Mr. Fenner Brockway: That it is open to abuse.

854. *Chairman*: Oh, that is a fair argument, if you like.

Mr. Fenner Brockway: And I must draw your attention to the letters of Sir Charles Craven which were given as exhibits in the American Arms Inquiry. Sir Charles Craven, a very responsible official of Vickers, indicates in those letters that he has certain friends in government departments. He indicates that those friends try to get Vickers orders. He indicates that they provide him with confidential information regarding the prices put in by other competitive firms.

855. *Chairman*: Yes; but those persons whom you are referring to at the moment, if they exist, are actually people in government employ, not people who have left the employ and gone into the armament business?

Mr. Fenner Brockway: No; but obviously I cannot put it more strongly than this—I will put it like this—that it would be very possible for an armament firm to say to an official in a government department who was responsible for giving orders, "You can understand that when you leave your position in the government at such an age, a directorate or an official position will be open to you in our firm." I say that is a possibility.

856. *Chairman*: A pure assumption.

Mr. Fenner Brockway: Well, may I read this extract from a letter of Sir Charles Craven?

857. *Chairman*: Yes.

Mr. Fenner Brockway: It is Exhibit No. 18 in the American Arms Inquiry. It is a letter to the Electric Boat Company, which are the American allies of Vickers for the manufacture and sale of submarines. Sir Charles Craven says in this letter: "I also think that perhaps it would be worth while putting forward a tender for six boats"—that is a

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tender for six submarines for the British government—"the total number to be built. I had a word with the Director of Contracts at the Admiralty, who is a friend of mine, and who would like this. He, I know, tried to get us the order for all five submarines last year." I take one other quotation, from Exhibit 19, a letter from Sir Charles Craven again to the Electric Boat Company of America: "I have been able to obtain the enclosed information from an absolutely reliable but very secret source. The only three tenders receiving serious consideration are Vickers', Beardmore's and Cammell Laird's, and we were the only firm who tendered for more than three boats. The attached statement shows the state of affairs in the order of cheapness from the Government's point of view. I do know that one of the important Admiralty departments is recommending that Vickers should have four and Cammell Lairds two, and it would therefore appear that we stand a good chance of at any rate three or four boats." Now, I am going to suggest to you, Sir, that that indicates that Sir Charles Craven has secret sources of information from inside the Admiralty, and that that is a very dangerous relationship.

858. *Chairman*: Now, in paragraph 4, there is a question I want to ask about head (f). I do not quite follow this. This is a complaint and a charge: "Armament firms have organised international armament trusts, which have increased the price of armaments to governments." Well, by that you mean not only our own Government but all governments to whom the goods are supplied; is that so?

Mr. Fenner Brockway: Yes.

859. *Chairman*: Well, from the point of view of encouraging warlike aims or feelings, the dearer the goods are the less likely they are to be sold, are they not?

Mr. Fenner Brockway: Unfortunately governments will spend on war preparations almost whatever the cost; I mean, they will economise, when it is a matter of health, housing, unemployment benefit; but when you get the psychology of war panic, they will spend limitlessly, and I doubt whether the raising of prices is a very big factor.

860. *Chairman*: I should have thought that the cheaper the goods from this point of view the more dangerous the operation; but still, you do not take that view?

Mr. Fenner Brockway: I should have said that when it is a monopoly, when you have a government as the purchaser, and that government can rely upon all the wealth of its community and create a scare about a war danger, they will not care very much about the price they have to pay. I could give evidence to support that if you desire to have it.

861. *Chairman*: Oh, I do not doubt that. No, I do not think there is anything else I want to ask. I quite follow your recommendations, but it is quite obvious that with the best intentions there would be some difficulty in carrying them out. For instance, that it should be made illegal for any British citizen after a given date to own or hold shares in the industry either at home or abroad, which is primarily devoted to the production of war materials. It would be difficult to enforce that, even if it was part of the law, would it not?

Mr. Fenner Brockway: It would be difficult; but surely the danger of war in the world is enough to make us try to get over obstacles of that kind.

862. *Chairman*: Certainly, yes.

Mr. Fenner Brockway: After all, there are certain illegal industries. It is illegal now in the British Empire to own slaves. It would be illegal to hold shares in a company which was owning slaves. Well, war is just as great a disaster to the world as slavery, and the time will surely come when we shall make it illegal to own shares in any industry which is making munitions of war.

(After a short adjournment.)

863. *Dame Rachel Crowdy*: I should like Mr. Fenner Brockway to tell me what a workmen's council consists of, or a workers' council. Who would be represented on that? You say "all grades of workers employed", but does that include managers as well?

Mr. Fenner Brockway: It would certainly include the staff, the clerical staff.

864. *Dame Rachel Crowdy*: Yes, but not only the people who are managed on the staff but the people who manage the staff as well?

Mr. Fenner Brockway: Yes. I mean we should make it representative of every section of worker in the industry.

865. *Dame Rachel Crowdy*: But only the employed and not the employers at all?

Mr. Fenner Brockway: It depends what you mean by that. I should regard anyone in a staff position who was doing a paid salaried job as a worker.

866. *Dame Rachel Crowdy*: That is what I wanted to know.

Mr. Fenner Brockway: I should not regard him as an employer.

867. *Mr. Spender*: You would not say, would you, that the Admiralty relied alone on Mr. Mulliner for their information?

Mr. Fenner Brockway: No. I think the initiative was taken by Mr. Mulliner. It is some distance away in time. I do not know of other sources of evidence. I do not think they have been revealed.

868. *Mr. Spender*: Well, naturally not. My recollection is somewhat different but it was certainly that the initiative came from the Admiralty.

Mr. Fenner Brockway: Excuse me; I do not know of any public document or any speech which has indicated that.

869. *Mr. Spender*: The initiative came, of course, from the German programme of the previous year, the 1908 German programme.

Mr. Fenner Brockway: Yes, but I understand that it was Mr. Mulliner who in the first instance went to the Admiralty.

870. *Mr. Spender*: I rather think that is not so; but still we can leave it. It would be true to say, would it not, that in 1913 after Mr. Winston Churchill had become First Lord of the Admiralty he found it necessary to propose a very considerable increase in the Fleet?

Mr. Fenner Brockway: Oh yes, quite so.

871. *Mr. Spender*: So it does not seem that Mr. Mulliner's information was very much wrong?

Mr. Fenner Brockway: I should say that that arose out of the Agadir incident in 1911.

872. *Mr. Spender*: That is far back, is it not?

Mr. Fenner Brockway: Yes, but Mr. Mulliner, if my recollection is right, is 1909.

873. *Mr. Spender*: That is true. In 1912 and 1913 it again became necessary, according to the opinion of the Admiralty, to make a large increase of the British Fleet?

Mr. Fenner Brockway: Yes; again after the Agadir incident the rivalry between Germany and Britain was increasing greatly. I should have dated it from the Agadir incident in 1911 and the revelation at that time of the secret clauses in the treaty between Britain and France.

Mr. Spender: Well, that takes us into deep waters. I should be very glad to follow you another time.

874. *Sir Philip Gibbs*: I see you say that you advocate that no exports of arms should be permitted at all from this country; but supposing, for instance, that a small nation were attacked aggressively and wantonly by another nation, would you also prohibit the export of arms to help that small nation?

Mr. Fenner Brockway: Yes, personally I should, and I think probably, speaking for my party, we would. We do not take the view that small nations are just attacked wantonly. We take the view that foreign policies are a much more complicated matter

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than that, and that very often one says a small nation has been attacked, as Belgium was attacked in the War, but there are much more complicated issues behind it all; and generally speaking my Party would say that we would certainly oppose the export of war materials for any government of a capitalist nature. Undoubtedly we would say that.

875. *Sir Philip Gibbs*: For instance, you would be against the export of arms to China, you say, if you believed that it was wantonly attacked by Japan?

Mr. Fenner Brockway: Yes. We would adopt rather the other method. We would press for a government embargo upon war materials to Japan and we would urge direct action by the workers to prevent it.

876. *Sir Philip Gibbs*: Of course, you have admitted that these proposals of yours are extremely drastic and far-reaching, and I imagine that you would agree that they are not likely to happen quite soon?

Mr. Fenner Brockway: I am afraid not.

877. *Sir Philip Gibbs*: Would the Independent Labour Party support something a little less drastic, that is to say, if you cannot carry out the whole of these provisions, I imagine that you would be in favour of a general limitation of arms internationally?

Mr. Fenner Brockway: Yes, we should vote in favour of it undoubtedly. We should vote in favour of a simple proposition of nationalisation, but we should emphasise the point as to how inadequate we would regard those measures.

878. *Sir Philip Gibbs*: Would you approve of unilateral action in this country with regard to nationalisation without an international agreement?

Mr. Fenner Brockway: Yes, I think undoubtedly.

879. *Sir Philip Gibbs*: From a moral point of view?

Mr. Fenner Brockway: We would support that from a moral point of view; but I do not think necessarily nationalisation of the armaments industry in this country does involve nationalisation in other countries.

880. *Sir Philip Gibbs*: But do you think that it would do any practical good to have a nationalisation in this country of the arms manufacture without an international agreement on that subject?

Mr. Fenner Brockway: Yes, I think it would be of a certain value. The major proposals here are related to this country; and we would have those proposals carried out even if they were not carried out in other countries.

881. *Sir Philip Gibbs*: You do not think it would put this country into a rather dangerous position?

Mr. Fenner Brockway: Well, I understand that Dr. Addison argued yesterday that nationalisation is desirable from the point of view of making the armaments industry more efficient for war purposes.

882. *Sir Philip Gibbs*: Of course, the people who attack nationalisation base it upon the fact that whether we nationalise or not the same movement of arms from one nation to another would occur, so that you would not remedy any abuses in the traffic in arms. Would you agree with that?

Mr. Fenner Brockway: I should say we would remedy certain of the abuses and very considerable abuses because of the exceedingly important position which the British armaments trade occupies in the world. After all, our exports of arms are greater than any other. Vickers is probably as important an armament firm as any in the world in reference to international relationships, and if these proposals were put into operation I cannot see that happening in this country.

883. *Sir Philip Gibbs*: Supposing, for instance, we were to nationalise and prohibit the export of arms, would not that simply increase the markets of other nations who did not take that point of view?

Mr. Fenner Brockway: Yes, I think it would, but I cannot imagine for one moment our putting through proposals of this kind without them having,

for example, a tremendous repercussion in America. I should have said that the demand for drastic proposals is stronger in America, has more public opinion behind it in America, than here; and if we were to adopt these proposals here they would certainly extend to America and there would be increased pressure for them in other parts of the world.

884. *Professor Gutteridge*: That is not what happened in the case of slavery, though, was it? I think we abolished slavery some thirty years before America did?

Mr. Fenner Brockway: Yes. They were rather different circumstances.

885. *Professor Gutteridge*: I am afraid I do not share your optimism on that point; that is all.

Mr. Fenner Brockway: Well, I base it on a little knowledge of the strength of the movement in America.

886. *Sir Philip Gibbs*: I want to ask you one or two more questions. Mr. Walton Newbold this morning rather suggested that the labour employed in the centres of armament manufacture like Coventry were naturally from a trade point of view, and from the desire to have good wages, in favour of a continued demand for arms, and would therefore, perhaps, be against any plan which would limit the demand for manufactures of that kind. Now from your experience in the Independent Labour Party, do you think that that is a fair statement of the attitude of the working men in those centres?

Mr. Fenner Brockway: I can speak of Sheffield rather more than of Coventry. I should say this, that quite naturally the main desire of the workers there is to get work and to have a wage and to have security for their families. That is their main desire and they would rather have security which comes from a war industry than no security at all; but whilst they say that I do not think there is any doubt at all that they would much prefer to be at work on peace industries rather than war industries. In all my experience that has been the case. At conferences against war and for disarmament in that area we have actually had representatives from the firms engaged in the manufacture of war materials. I think that is probably an accurate statement.

887. *Professor Gutteridge*: I want to ask you whether you have considered the question of other state enterprises trading in arms. That is not an impossibility, is it—that if you had universal nationalisation of the arms industry a country might indulge in the traffic of arms?

Mr. Fenner Brockway: Yes, except that under these rules it would be prohibited from doing so.

888. *Professor Gutteridge*: But you would have to secure that somehow would you not?

Mr. Fenner Brockway: Certainly.

889. *Professor Gutteridge*: I do not quite see where it comes under your rules.

Mr. Fenner Brockway: Yes, I think it does.

890. *Professor Gutteridge*: Oh, possibly under the last.

Mr. Fenner Brockway: It comes under (f) in relation to (j): "The export from Britain of materials for war purposes shall be absolutely prohibited . . . (j) The British Government having adopted these methods to eliminate profit-making from war preparations"—that is in Britain—"should do its utmost to get them adopted internationally."

891. *Professor Gutteridge*: You would have to make sure of that, I think, would you not?

Mr. Fenner Brockway: Well, I would do it as a precedent even if we could not get it done in other countries.

892. *Mr. Spender*: Would you compensate these firms whom you propose to abolish?

Mr. Fenner Brockway: I should apply exactly the same principle as is applied to a man who loses his work. A man who loses his work is given unemployment benefit. His family, we think, is very

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MR. FENNER BROCKWAY.

[Continued.]

inadequately maintained. If there was need in the case of these owners for their families I would give that amount of compensation, but I should not accept the principle of compensation as a whole. I do not see that an employer or an owner has any more right to it than a worker. A worker loses his job; an owner loses his shares.

893. *Chairman*: We are much obliged to you. I think those are all the questions we wanted to put to you. Is there anything you want to add?

Mr. Fenner Brockway: Yes. I wonder whether you would permit me to add this. I happened to be in the room when Dame Rachel Crowley put a question about illicit trading to my predecessor in the box, Mr. Walton Newbold.

894. *Dame Rachel Crowley*: I am prepared to ask Mr. Fenner Brockway that question again if he likes.

Mr. Fenner Brockway: I happened to hear it, and there are just two or three instances to which I want to draw your attention. The first is rather an amusing one which came before the United States Senate Committee on Foreign Affairs.

895. *Chairman*: What is it you are reading from? Is it something that we have got?

Mr. Fenner Brockway: No, I am afraid it is not. I am reading from my own notes, as a matter of fact. The United States Senate Committee on Foreign Affairs was inquiring into a proposed embargo on war materials in 1932, and Mr. Thomas A. Morgan, the President of the All-American Aeronautical Chamber of Commerce, was giving evidence and he complained then that European armament firms were sending high class fighting aircraft to the Canton Government and simply leaving off the machine guns and calling them commercial 'planes. The amusing fact was that Mr. Green, a member of the War Department of the United States, pointed out that American firms were doing exactly the same thing in another way: they were sending to China 'planes which were certified as civil 'planes, but through the post were sending blue prints indicating the manner in which these 'planes could be converted into military 'planes.

896. *Chairman*: Is that Mr. Green of the Federation of Labour?

Mr. Fenner Brockway: Oh no; this is Mr. Green, an official of the State Department, a government official, giving that as his government information. The second point to which I want to draw your attention in this matter is dealt with in Exhibit 84 of the American Arms Inquiry. That evidence showed that in 1934 there was tension between Peru and Colombia—not actual hostilities, but great tension—and Vickers supplied 1,200 rounds of 3-in. ammunition for the sum of 50,000 dollars. It was shipped to Para in Brazil, then from Para sent to the West Indies, and from the West Indies handed over to a Peruvian ship. It was part of a contract by which the Electric Boat Company of America was delivering two gunboats to Peru. This order was kept secret but it was revealed in an American technical paper. Mr. Henry R. Carse, the President of the Electric Boat Company, then wrote to Mr. Spear, another member of the company, as follows: "I understood it was our intention to camouflage this transaction so as to avoid any complaints being raised in Washington by the Colombian authorities which might prevent delivery of the vessels."

897. *Dame Rachel Crowley*: That was being exported from here, was it not?

Mr. Fenner Brockway: The ammunition was being exported from here.

898. *Dame Rachel Crowley*: Was that under a Board of Trade certificate, do you know?

Mr. Fenner Brockway: I should imagine so.

899. *Dame Rachel Crowley*: Was its destination declared, do you know? Have you been into that?

Mr. Fenner Brockway: Again I should imagine so. I imagine Vickers will have got a certificate.

900. *Dame Rachel Crowley*: Vickers will be able to answer that question.

Mr. Fenner Brockway: I think the probability is that Vickers got a licence to send the ammunition to Peru. The difficulty was obviously getting round Washington rather than around London. But the third case is the one to which I wanted to draw your particular attention. The United States Government placed an embargo upon war materials to Paraguay. Du Pont, the big chemical industry of America, was asked to quote for the supply of chemical powders for explosive purposes. They have the very closest relations with the Imperial Chemical Industries of this country, and in reply to this application to quote they said: "Advise Ferreira"—that is the man who was negotiating with the Paraguayan Government—"Cannot quote owing to embargo. I.C.I. London will quote direct to you." Then they sent a letter to the I.C.I. in this country in which they say: "Attached is confirmation copy of our cablegram of 7th June informing you that Sr. Manuel Ferreira, our agent in Paraguay who is now in Buenos Aires, asked us for prices c.i.f. Montevideo on 200 kilos Picric acid and 2,000 kilos Flake T.N.T. We also informed you in our cablegram that we could not quote from this end owing to the embargo on munitions and military propellants decreed by President Roosevelt. In view of the fact that there is no similar embargo obtaining in England, we suggested that you quote prices to your office in Buenos Aires, who in turn would advise Ferreira. Although the inquiry distinctly states that prices are wanted c.i.f. Montevideo, we suspect that the material is for Paraguay, and since we wish to co-operate with our government in observing the embargo, we deemed it best not to quote."

901. *Mr. Spender*: What is the date of that?

Mr. Fenner Brockway: 7th June, 1934. I want to be quite careful about the date, because it is not actually given on the letter here.—Yes, 7th June, 1934. That is correct.

902. *Dame Rachel Crowley*: Is that an American Exhibit, too, at the Nye Committee?

Mr. Fenner Brockway: Yes, on pages 1337 and 1338 of Volume 5 of the Proceedings; and there because of the agreement between Du Ponts and the I.C.I., when an embargo is put upon the export from America they arrange that it shall be carried through by the I.C.I. in this country.

903. *Sir Kenneth Lee*: Has it not struck you that, in view of the fact that all the files of these people were seized, they found exceedingly little?

Mr. Fenner Brockway: I should not say so.

904. *Sir Kenneth Lee*: Well, what you have quoted now are very small incidents?

Mr. Fenner Brockway: I think they are very characteristic incidents, and I think—I have got to be careful how I put this—I think you would find that the American armament companies carried through a very extensive destruction of materials before the searches took place. I think you will find that to be the case, and that actually it was very curious how the investigators found odd references in letters, and from those odd references they followed up and they got further evidence.

905. *Dame Rachel Crowley*: I should like, if I may, to substantiate that statement of the witness, because Senator Nye told me that himself—that they had been able to find out cases, not by the records that they found with the big firms, but by slight references in letters that they found in the small firms, which is your point, is it not?

Mr. Fenner Brockway: I think after that statement I can say it was Senator Nye who was the source of my information.

906. *Chairman*: I think, if that is all you wish to add, that is all we wish to ask you, and therefore we will adjourn now for the day. To-morrow we will meet at 10.30 and continue the questions to Dr. Addison.

(Adjourned to to-morrow, 10.30 a.m.)

APPENDIX.

STATEMENT OF EVIDENCE TO BE SUBMITTED ON BEHALF OF THE
INDEPENDENT LABOUR PARTY.

1. So long ago as 1921 the First Sub-Committee of the Temporary Mixed Commission of the League of Nations reported a series of charges made against armament firms. The evidence given to the Committee has not been published, but the efforts of investigators in various countries have revealed a considerable body of facts which support the charges. In particular, the proceedings of the Special Committee of the United States Senate Investigating the Munitions Industry have been important in this respect. Below we reproduce the charges, with relevant evidence relating to British firms.

2. The American Inquiry has been able to obtain important evidence because it has the power to examine the files and books of any firm in the United States which manufactures munitions. In respect of evidence it has the same authority as a British court of law possesses, with the rights of search given by a search warrant. If papers or witnesses are refused, the defaulters can be found guilty of "contempt of the Senate" and can be fined or imprisoned. Perhaps equally important, the American Inquiry has a staff large enough to carry out the investigation thoroughly. There are thirty trained investigators, who have the power to enter the premises of any firm engaged in the production of war material and demand to see all papers, books and letters. The thirty investigators are supported by a staff of thirty office workers.

3. If the present British Commission had similar powers, it would not be necessary for organisations like the Independent Labour Party to submit evidence regarding the activities of British armament firms. The facts could be obtained directly. We are under the disadvantage of having to rely upon such facts as have been revealed either casually or through the American Inquiry.

4. We reproduce below the charges reported by the League of Nations Committee and indicate supporting evidence. If we were to include evidence regarding the armament firms of other countries it would be possible to justify every charge. For the purpose of this Inquiry we have limited evidence to that relating to British firms:—

- (a) *Armament firms have been active in fomenting war scares and in persuading their own countries to adopt warlike policies and to increase their armaments.*

The Liberal Government elected in 1906 adopted a policy of reduced expenditure on armaments. From 1908 to 1910 the profits of armament firms fell seriously. The dividends of Vickers and Armstrong, for example, fell from 15 to 10 per cent.

On March 3rd, 1909, Mr. Mulliner, manager of the Coventry Ordnance Works, was received by the Cabinet and convinced its members that the German Government was secretly accelerating her naval programme. Mr. Asquith, the Prime Minister, and Mr. McKenna, the First Lord, announced in the House of Commons that Germany would build seventeen Dreadnoughts by March, 1912, instead of the nine publicly announced. Parliament immediately voted an increase of naval expenditure of £4,608,002 for the building of four Dreadnoughts. Of this amount £4,409,502 went to the private armament firms. Before the end of the year the Government responded to a demand, fostered by the leaders of the Opposition and the popular press, for four more Dreadnoughts. When March, 1912, came the statements of Mr. Mulliner were proved unjustified. This incident undoubtedly contributed to the tension which preceded the World War.

The immediate result of Mr. Mulliner's approach to the Cabinet was to send up armament profits. The

profits of Vickers the year before were £424,000. In succeeding years they were: £474,000; £544,000; £745,000; £872,000.

- (b) *Armament firms have attempted to bribe Government officials both at home and abroad.*

Early in 1910 Rear-Admiral Fujii was sent by the Japanese Government to Britain to report upon estimates submitted by Vickers and Armstrong (then separate firms) for a battle cruiser. He recommended the acceptance of the Vickers estimate, and in November, 1910, a contract to the value of £2,307,100 was signed.

Admiral Fujii was in 1914 concerned in a case in the Japanese courts. Evidence was given that he was on intimate terms with the director of the Vickers works at Barrow, that the director had asked the admiral to show his goodwill towards Vickers, and that after the accused's return to Japan, the director, with a view to reciprocating his goodwill, had remitted, over a period of years, certain large sums of money to the admiral. (*Japanese Weekly Chronicle*, June and July, 1914.)

Three years previously, according to the same paper, Admiral Fujii received "remitances" in connection with an order given by the Yarrow Shipbuilding Yard; a "remitance" of £1,000 from Weir and Co. in connection with an order for machinery and pumps; and a gift of £1,750 from Arrol & Co. subsequent to an order for materials valued at £33,620.

We have no evidence of bribery of Government officials at home. There is, however, a subtle method adopted by armament firms for obtaining influence over Government departments to which attention should be called. It is their custom to appoint to their directorates, or to important posts in their service, officials of high standing in the Ministerial departments on their retirement from Government service. This custom, whilst it cannot be described as bribery, has certain advantages which have been stated frankly by the technical newspaper *Armaments and Ammunition* (September, 1913):—

"Contractors naturally are very keen to avail themselves of the services of prominent officers who have been associated with work in which the contractors are interested. The chief thing is that they know the ropes, since the retired officer who keeps in touch with his old comrades is able to lessen some of these inconveniences, either by gaining early information of coming events or by securing the ear of one who would not afford like favours to a civilian. . . . Kissing undoubtedly goes by favour, and some of these things that happen might be characterised as corruption."

The directors of Vickers-Armstrong include six retired high-placed officials in Government circles or ex-officers in the fighting services:—

General the Hon. Sir Herbert Lawrence. Chairman of Vickers since 1926. Chief of Staff, Headquarters, British Army in France, from January, 1918. Left Army on retired pay, 1922.

Sir Mark Webster Jenkinson. Formerly Controller of the Department of Factory Audit and Costs at the Ministry of Munitions, and Chief Liquidator of Contracts at the Ministry of Munitions after the War.

General Sir J. F. Noel Birch. After a long military career was Artillery Adviser to the Commander-in-Chief in France, 1916-19. Director of Remounts, 1920-21. Director-General of the Territorial Army, 1921-23. Master-General of the Ordnance and Member of the Army Council, 1923-27.

Sir J. A. Cooper. Principal in Charge of Raw Materials Finance at the War Office, 1917-19; then became the Director of Raw Materials Finance at the Ministry of Munitions, 1919-21.

Sir A. G. Haddock. Formerly an Associate Member of the Ordnance Committee.

Engineer Rear-Admiral R. Beaman. Deputy Engineer-in-Chief to the Admiralty since 1932. (Admiral Beaman was appointed "Special Director" and Engineering Manager at Barrow in May, 1935.

- (c) *Armament firms have disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armament expenditure.*

See evidence under (a).

- (d) *Armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries.*

We have no evidence of this in connection with British firms, though there is considerable foreign evidence.

In this connection, however, attention should be drawn to the allegations that several of the foreign correspondents of the *Times* have also been agents of Vickers.

- (e) *Armament firms have organised international armament rings, through which the armaments race has been accentuated by playing off one country against another.*

- (f) *Armament firms have organised international armament trusts, which have increased the price of armaments to governments.*

Before the War there were two international rings of gunpowder and explosive manufacturers with which British firms were connected.

The Nobel Dynamite Trust Company was registered as a British company. It owned, or was interested in, six British companies, with three of which Vickers shared directors. It was similarly connected with four German firms, and was one section of the International Cartel of Powder Manufacturers, which represented firms in Britain, Germany, France, Russia and Japan. During the War this trust supplied gunpowder and explosives both to Germany and Britain. Its German and British partnership was only dissolved in May, 1915, nine months after the outbreak of war. Despite the fact that enemy property was generally confiscated, the British and German Governments gave passports for agents of this trust to meet in Holland to arrange for an exchange of shares.

Similarly there was the Chilworth Gunpowder Company, with headquarters at Vickers House, Westminster. It had 13 shareholders. Four of these bore the name of Vickers. A fifth (Sir Trevor Dawson) was the managing director of Vickers, a sixth (Mr. Meade Falkner) was a director of Armstrong. Among other directors were Louis Hagen and Carl Duttenhofer, directors of the German Arms and Munitions Factory.

There was also an international armour-plate ring known as the Harvey United Steel Company, in which all the leading armour-plate firms were associated. The chairman was Mr. Albert Vickers, the managing director of Vickers-Maxim. Its directorate included representatives of the four main British armour-plate firms at the time (Charles Cammell, John Brown, Armstrong-Whitworth, and Vickers-Maxim), the two most important German firms (Krupp and Dillinger Steel), the three chief French firms (Schneider, Chatillon Steel and St. Chamont Steel), the Terni steel works of Italy, and the Carnegie Steel Company of the U.S.A. This group of firms was linked with nearly all the armour-plate companies in the world, covering (in addition to the countries mentioned above) Russia, Austria, Japan, Spain and Portugal.

Since the War the armament firms have not been so openly associated in international organisations,

but international connections are close and there is evidence of international agreements. Vickers-Armstrong has associated companies not only in the British Empire (Canada, Ireland, New Zealand and India), but in Spain, Italy, Rumania, Holland, Poland, France, Japan and South America. The associated companies include the Sociedad Espanola de Construcción Naval, of Spain, the Societa Vickers Torni, of Italy, the Fokker and Junkers Company (Dessau), of Holland, the Societe de Material de Guerre, of Poland, the Japanese steel works, a part of the Japanese armament combine, Mitsui. Vickers-Armstrong has works in Rumania and at the time of the Vickers-Armstrong amalgamation the subsidiary companies included Vickers-Schneider (which links up Vickers with the great French combine, Schneider-Creusot) and companies in South America.

During the proceedings of the American Inquiry an agreement between the Electric Boat Company of New Jersey and Vickers, Ltd., was entered as an "exhibit." Under this agreement Vickers takes 60 per cent. of the profits on submarines built in Vickers' yards in Britain and the E.B.C. 40 per cent.; in the case of submarines built in other yards in Britain and Ireland, or yards in continental Europe, the two companies share profits. The agreement also contains provisions for the division of the world into reserved territories for submarine selling by the two companies. The British Empire is reserved exclusively for Vickers. The U.S.A. and its colonies and dependencies, and the Republic of Cuba, are reserved exclusively for the E.B.C. Correspondence between the two firms, entered as "exhibits" at the American Inquiry, made it clear that the relations of Vickers and the E.B.C. are used to "increase prices." We draw your attention particularly to exhibit No. 91 (a letter from Mr. Henry R. Carse, President of the E.B.C., to Sir Trevor Dawson, chairman of Vickers, Ltd.), and exhibit No. 125 (a letter from Sir Charles W. Craven, of Vickers, to Mr. L. Y. Spear, of the E.B.C.).

5. To these charges reported by the League of Nations Committee many could be added. We wish to draw your attention especially to these further facts:—

- (a) *British armament firms have produced war materials for other countries which have been used against Britain in time of war.*

For example:—

The Turkish arsenal and dock at the Golden Horn and the naval base at Ismid, used against British and Australian troops with such terrible effect in the Dardanelles, were maintained up to the very eve of the war by Vickers and Armstrong. They signed the contract with the Turkish Government at the end of 1913. Mr. Hugh Dalton stated in the House of Commons on 11th March, 1926, that the "shells which were fired into the Australian, New Zealand, and British troops" were also supplied by Vickers.

The docks of Henry Whitehead & Co. (a subsidiary of Vickers and Armstrong) at Fiume in Austria provided torpedoes, torpedo-boats, torpedo-boat destroyers, submarines and mines for Austria immediately before the World War and during the War these docks were used to supply the navies of the Central Powers.

- (b) *British armament firms have prolonged the war between Paraguay and Bolivia, despite the "outlawing" of this war by the League of Nations, by supplying war material to both sides.*

According to the British Government's returns, 2,130,550 rounds of ammunition were exported to Bolivia between January, 1932, and June, 1933, and 16,570,000 rounds to Paraguay. In addition, 90 machine guns and 6 tanks were exported from Britain to Bolivia.

(c) *British armament firms provided the Japanese Government with war materials for use against China, despite the condemnation by the League of Japanese aggression.*

During 1932, according to official figures, British armament firms exported to Japan 5,361,450 small-arm cartridges, 4,909 cwt. of high explosives, and other explosives to the value of £40,239.

(d) *Although the re-armament of Germany has been condemned by the British Government, British armament firms have advertised field artillery in the German military press and have supplied Germany with aeroplane engines.*

Vickers-Armstrong advertised 105 mm. field artillery in the *Militär-Wochenblatt*, in April, 1932. (See reproduction of advertisement in "The Bloody Traffic.")

In May, 1934, eighty Armstrong-Siddeley aeroplane engines were sold to Germany. This is not an isolated instance.

It may be added that raw materials necessary for war preparations have also been exported heavily from Britain.

Financial News of 15th May, 1935, stated:—

"a large part of the increase of German imports from Britain is accounted for by the extra imports of such essential war materials as iron ore, copper ore, mineral oils, etc. . . . In every single instance, net imports into Germany of any one outstanding war materials have shown a more or less spectacular rise in 1934. And on balance the first three months of this year show a continuance of that tendency."

The same issue of the *Financial News* reports that German firms have been given £5 millions credit by British firms to enable them to make these and other purchases.

(e) *British armament firms have provided war materials to the Chiang Kai Shek Government in China for its war against the Chinese Soviet Republic.*

The official returns of British arms exports to China are significant. They rose in value from £7,300 in 1932 to £223,000 in 1933. In 1932, British armament firms were exporting arms in the Far East mainly to Japan to be used against the Chinese Government. In 1933, the British armament firms began heavily to assist the Chinese Government in its war against the Chinese Soviet Republic.

6. We are aware that the armament firms are only permitted to export arms openly to other countries under licences received from the British Government. This does not absolve from blame the armament firms which have supplied governments conducting wars condemned by the League, but it does also involve the Government in the responsibility.

Sir John Simon has explained that licences are only granted when the exports are consigned to *de facto* governments. Under present conditions the rule to supply only recognised governments with arms may mean that war materials from this country are being used to maintain cruel tyrannies. In the case of China, for instance, most liberal-minded people, in addition to Socialists, would recognise the Chinese Soviet Republic as far more civilised than the Chiang Kai Shek Government.

An incidental point of importance should be emphasised. British workmen are employed on the production of these war materials without any knowledge of where they are to be used. They may accordingly be engaged in making death-dealing instruments to destroy those with whose cause they sympathise. In our view workmen have a right to know for whom and for what purpose they are making materials of slaughter. So long as exports in war materials are permitted, the public, and particularly the organisations representing the workers employed in making them, should be informed of the intended destination of any order before it is put in hand.

7. The methods of armament firms, as indicated above, are specially repugnant because they deal in articles of human slaughter; but it should be recognised that they are following the normal practices of industries under the present economic system of capitalism. The capital of armament firms is provided by shareholders who expect dividends and welcome high dividends. The dimension of the dividends depends upon the sale of goods and the margin of profit made upon the orders received. To achieve these results armament firms adopt the ordinary methods of business. The most efficient goods must be produced. A market must be created by smart salesmanship, enterprising publicity, and the careful encouragement of conditions which facilitate orders. Goods must be sold within the limits of the law to whomsoever will buy. Rings and trusts must be formed to extend orders and keep up prices. If instances can be cited of the use of bribery to obtain orders, it will not be pretended that this method is confined to the armaments industry.

8. But there is this difference between the armaments industry and most industries. With few exceptions (however badly they may function under capitalism), other industries are engaged in the production of goods necessary for life or the enjoyment of life. The armaments industry, on the other hand, is engaged in the production of goods for the purpose of death. Those goods are the most efficient which enable the most human beings to be killed with the greatest ease. The success of salesmanship and publicity is measured by the extent to which these death-dealing goods are spread over the world. The conditions to be created for good business prospects are international tension, circumstances threatening war, and the intensification and prolongation of war when it occurs. The purchasers of the goods may be enemy governments which will use them to decimate the fellow-citizens of the armament-makers. The rings and trusts may be used, to quote the League report, "to play off one country against another" in armaments rivalry and to hold governments up to ransom by extorting higher prices. These differences naturally invite the question whether the community should permit this industry to remain on a profit-making basis and in its search for markets to encourage conditions endangering peace.

9. We submit that it is urgently necessary to end the motive of profit-making in all war preparations.

10. On examination, however, it will be found that it is difficult to separate the industries engaged in the production of war materials from ordinary industry. The war industry is interwoven with the whole economic system. Most of the war material industries are also engaged in the production of goods for civil purposes; armament industries construct machinery, transport vehicles, typewriters. The chemical industries which produce explosives and poison gas, produce chemicals for peace purposes on a large scale. The aircraft works which produce fighting and bombing 'planes, produce 'planes for civil purposes. The oil companies, which play an important part in the economic preparations for war, provide oil for motor and ship transport and for industry generally.

11. There are also close connections between the war material industries and other industries, and particularly the banks. Vickers, for instance, is associated with electrical, rubber, steel, iron, and coal companies (see *Economist*, 4th August, 1934), and its directorate is closely linked with banking concerns. General Sir Herbert Lawrence, chairman of Vickers-Armstrong, is also the chairman of the Anglo-International Bank, Ltd., and managing partner of Glyn Mills & Co., the important bankers, and a director of the Bank of Rumania, Ltd., and a member of the London Committee of the Ottoman Bank. Sir O. H. Niemeyer, another director, is one of the most influential figures connected with the Bank of England, and is also a director of the Anglo-International Bank, Ltd., and a member of the London Committee of the National Bank of Egypt. The directors of Vickers-Armstrong

have connection with banking concerns in America, China, India, Australia, Rumania, Turkey and Egypt. Moreover, the banks have a large share in the ownership of armament firms. The banks have larger blocks of shares of all classes in Vickers, Ltd., than any individual except Mr. Douglas Vickers (with others). The following are instances:—

Westminster Bank, Ltd.

10,291 ordinary

3,440 5 per cent. cumulative preference.

Clydesdale Bank, Ltd.

9,473 ordinary.

2,360 5 per cent. cumulative preference.

Messrs. Coutts & Co.

7,768 ordinary.

S. Japhet & Co.

6,702 ordinary.

12. When we come to examine the international connections of the war material industries the deep way in which they are embedded in the present economic structure is emphasised still further. We have already indicated the international connections of Vickers. Of equal importance is the Imperial Chemical Industries, Ltd., which has a virtual monopoly in this country in the preparations for chemical warfare. Exhibit No. 461 in the proceedings of the American Inquiry gives the subsidiary companies of the I.C.I. and its investment and contractual interests in world markets. The list shows that the I.C.I. has 21 "Foreign Alliances": eight in Belgium, five in France, three in Germany, two in Italy, and one each in Norway, South Africa and Switzerland. It has, in addition, foreign investments in 30 companies: U.S.A., 6; Belgium, 3; Australia, 3; two each in France, Czecho-Slovakia, Germany, and South Africa; and one each in Austria, Spain, Hungary, Canada, Rumania, Argentina, Chile, China, India and Japan. These companies manufacture explosives, sporting ammunition, fuses, detonators, nitrogenous fertilisers, ammonia and dyestuffs. Practically all are potential manufacturers of war materials—gases, explosives and ammunition, etc.—but they are also an important part of peace industry.

13. It is clear that a proposal to nationalise war material industries within Britain would not be enough. Recommendations to be effective must also deal with the participation of British concerns in the war industries abroad. Even if an international rule were adopted, say on the initiative of the League of Nations, that industries engaged in the production of war materials should be nationalised in all countries, the problem would not be solved. The difference in the case of the small nations would, under present conditions, be more apparent than real. The governments of such nations would only be able to nationalise their war industries by raising international loans. Such loans would be floated in London, Paris, New York and other financial centres. The financiers behind these loans, and the governments supporting them, would in fact be the owners of such industries.

This opens up dangerous prospects of small nations being used as the pawns of the big powers, which would naturally utilise their economic resources to win prospective allies. A new form of Economic Imperialism would be developed in which the governments of the big powers would be directly involved in maintaining the efficiency of the nationalised war industries of their smaller allies. It would obviously be in the interests of the associated "nationalised" industries to exchange information regarding new processes and new destructive instruments and chemicals. Rivalries would probably develop between the different groups of big powers and satellite nations. Political alliances would be supplemented by war-industry alliances. This is not a

reassuring prospect. Any remedies to be effective must clearly deal with the question of international loans for war industries.

14. Such facts as these indicate that the problem of the war industries is inseparable from the whole political and economic system under which we live. To adopt a phrase which has recently become famous: The economic structure of capitalism is one and indivisible. "Then where's the hope this trade in death will die?" the late Mr. Israel Zangwill made one of his characters ask. The answer was, and is:—

"There IS none while this social order lives.

"The man of business is the God of War,

"And gold pulls all the strings and all the triggers."

15. Meanwhile, we make the following recommendations with the object of removing so far as is possible the profit-making incentive from war preparations. They are designed to deal not only with the war industries in Britain, but also with British-owned companies in other parts of the world and with the relations of British companies to companies abroad:—

(a) All establishments in Britain—factories, mills, workshops, laboratories, etc.—which are primarily devoted to the production of war materials shall be nationalised, and shall be placed under a Minister directly responsible to Parliament. A workers' council, representing all grades of workers employed, shall be responsible for the control of the working conditions in these establishments.

(b) All British concerns owning establishments abroad which are used for the production of war materials shall transform them by a given date into establishments for the production of peace goods, or else disband them.

(c) All British concerns which have arrangements with companies abroad for the production or sale of war materials, shall end them by a given date.

(d) It shall be made illegal for any British citizen after a given date to own or to hold shares in any industry, either at home or abroad, which is primarily devoted to the production of war materials.

(e) If orders for war materials are given by the Government to any concern not state-owned, the work shall be done on a costings basis without profit.

(f) The export from Britain of materials for war purposes shall be absolutely prohibited.

(g) No British firm, bank, or individual shall participate in loans for the purpose of the production, transport, or sale of war materials in any part of the world.

(h) It shall be a criminal offence for any British citizen to solicit for orders for war materials or, on behalf of any firm, to attempt to exert influence against any proposals which may bring about a reduction of such orders.

(i) Committees of workers shall be appointed in all establishments concerned at any time in the production of war materials to assist in ensuring that these regulations are carried out. A national committee representative of the workers' organisations shall be appointed for a similar purpose.

(j) The British Government, having adopted these methods to eliminate profit-making from war preparations, shall do its utmost to get them adopted internationally.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

4 & 6

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

FOURTH DAY

WEDNESDAY, 19TH JUNE, 1935

SIXTH DAY

FRIDAY, 21ST JUNE, 1935

WITNESSES—

THE RIGHT HON. CHRISTOPHER ADDISON, P.C., M.D.,
F.R.C.S., M.P.

ON BEHALF OF THE NEW COMMONWEALTH SOCIETY:—
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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:

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1935

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (a) by the United Kingdom alone, (b) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

FOURTH DAY

Wednesday, 19th June, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Chairman: Before commencing the hearing of Dr. Addison's evidence, I feel it right to make a short statement with reference to something that Mr. Pollitt said on the last occasion when we met. He said that my name appeared on the register of Imperial Chemical Industries Ltd., as the holder of a substantial number of shares in that Company. Had it not been that I was a member of this Commission I should not have taken any notice of the statement, but I recognise to the full how important it is that a member of the Commission should be free from

any appearance of bias, and I therefore wish to state that, though for many years a number of United Alkali shares, recently converted into I.C.I. shares, stood in my name as trustee of the estate of a relative, that trust expired last year and all the shares were distributed and passed out of my name months before I was invited to become a member of this Commission. I hope that the Press, who reported Mr. Pollitt's statement, will also refer to this explanation of the facts.

The Right Hon. CHRISTOPHER ADDISON, P.C.,

M.D., F.R.C.S., M.P., called and examined.

570. *Chairman:* We are very much obliged to you, Dr. Addison, for coming to give us the result of your experience and your opinion. You have supplied us with a very full and detailed statement,* not only of the materials upon which you found your opinion, but a general history of the position during the time you were either Parliamentary Secretary or Minister, and also you have in this very full statement given us some idea of what the position was before you became directly connected with munitions work. Subject to what you may think, what I suggest is this. The full statement that you have submitted, containing not only your views as a result of your experience, but also all the materials—I will not say all the materials, but a fairly full statement of all the materials—upon which you founded that opinion appear in this printed document, and the document will appear as a whole as part of our proceedings; and, of course, that is necessary, because you would naturally wish that the materials upon which you found your opinion should appear at the same time as your conclusions and your opinion; and what I suggest (if it is convenient to you) would be convenient to us is that you should commence your evidence before us to-day at that point of this statement which you consider is the fair commencement of your conclusions, and, with regard to the earlier part, which contains the general history of the position, that you should merely indicate to us the heads that you wish us to bear in mind before you deal with your conclusions. Is that convenient and satisfactory to you?

Dr. Addison: Yes, I think that would be a convenient way of dealing with it; it being understood, of course, as you have explained, that the material upon which I have based my conclusions is a part of my evidence, although we do not go over it verbally.

571. *Chairman:* Then may I first of all indicate the position you occupied in reference to this matter? It appears in the first paragraph that you were informally appointed on the 26th May, 1915, I think, as Parliamentary Secretary, was it?

Dr. Addison: Yes.

572. *Chairman:* And you continued in that position, I think, from May, 1915, to July, 1917; you either continued to occupy that position or the position of Minister of Munitions?

Dr. Addison: That is so.

573. *Chairman:* And the earlier part of this document is concerned mainly with your experience during that period? You have also, by way of further introduction, given us some statement as to the position between October, 1914 and May, 1915?

Dr. Addison: Yes. I think that is material to indicate the reasons for a Ministry being established at all.

574. *Chairman:* Would you read to us your conclusions, just indicating the main points you wish to refer to, or shall we go straight to the point at which you think you would begin to deal with your conclusions—just as you prefer.

Dr. Addison: The first 22 paragraphs are narrative. They set out the position as we found it, and the reasons that emerged from our examination of the case and experience of the practical difficulties. They set out the reasons for my expressing the view that dependence upon private manufacture proved to be not only insufficient but dangerous, because of the reliance that it led the nation to have upon that system, which proved to be inadequate. The reasons for that inadequacy are set out in those paragraphs, and the results of the inadequacy in terms of arrears, and so forth. I analyse them as being in substance due to three main conditions which, I suggest, inevitably attach to that system, namely, its inelasticity—that is to say, it is not

* Appendix, p. 109.

capable of expanding in accordance with war requirements because of the limitations which necessarily attach to it—and its inadequate control over obtaining sufficient supplies of labour or materials or machinery, and securing their adequate and appropriate distribution for the purpose of war expansion. The conditions which, in my view, must attach to that system are set out in those 22 paragraphs.

I deal also in those paragraphs, particularly paragraphs 18 and onwards, with what, in my view, is the inevitable costliness of that system—the extravagance, or, at all events, the high costs that we found to attach to it—and what we had to do in order to check that. That is set out in those paragraphs.

Paragraphs 23 to 48 set out in detail what I believe to be the inherent imperfections of that system, which, because of our reliance upon it, are necessarily dangerous in time of war, and I think the facts abundantly showed that they were.

Then in paragraphs 48 to 54 I come to a set of matters which I think it may perhaps be material to refer to in detail later, when I describe the necessity of there being a single department. You will see there I tell the story of how, in the first instance, a Ministry had transferred to it certain duties, but that as a result of experience we found that it was necessary that certain others should be attached, until I am afraid in the long run we absorbed the whole lot more or less—the ordnance factories, the responsibility for design, inspection and filling, and generally the delivery of the completed articles, became the duties of the Ministry. You will see in paragraph 50, a decision of the War Council on the 27th January, 1916, whereby

“(a) The responsibility for designs, patterns and specifications, and for testing arms and ammunition rests with the Ministry of Munitions.

“(b) The Army Council is responsible for the general nature and amount of the weapons and equipment required.

“(c) When it is necessary that new weapons, stores, or articles of equipment should undergo practical trials by troops either at home or in the field the co-operation of the Army Council should be sought by the Ministry.

“(d) The Army Council should be represented on advisory committees or bodies under the Ministry of Munitions to the extent that they think desirable.”

Now, Sir, those four conclusions really emerged from the experiences of that year, and we found increasingly from the very beginning to the end that it was necessary to supply and manufacture that the powers and duties should be in one body, namely, the Ministry. Simply stated, it boils down to this: that the War Departments were to tell us what they wanted and we were to supply it; and from that time in the War to the end that arrangement remained unaltered and it worked quite well. The point I am making here is that bitter experience compelled us to obtain that concentration of design, manufacture, and all the rest of it, which is set out in this paper, and that that system must be adopted if we were unfortunate enough to have another war. That relates, anyhow, to the concentration of power. There is an exhibit there—Exhibit M*—which sets out that in detail. It relates particularly to the responsibility for design, and there are further notes about inventions, and so on, and Woolwich. If it is appropriate, I would like to answer questions which you may address to me later on this branch of the subject, because I see that Sir Eustace d'Eyncourt gave some evidence relating to the position of design in relation to supply. I do not want to interrupt my general review now, but I hope that later you will allow me

to return to that question, because I regard it as of great importance.

Then, leading up to what I recommend in paragraphs 48 to 54, I indicate—what is dealt with in detail a little later—the need, in my view, for a single department of state—and I indicate, merely as one of the many illustrations I could give you if you wished them, the difficulties that arose out of the manufacture of aeroplanes, which was, up to January, 1917, the business of a number of different departments—the War Office, the Admiralty, and the Air Board. I will ask you, in your cross-examination, if you will, to revert to that matter, because it is, in my opinion, a signal illustration of the waste which inevitably attaches to a system whereby different departments are ordering similar goods. Another disadvantage which attaches to that system which is of great importance, and related to what I said about design a minute or two ago, is referred to at the bottom of paragraph 53, where I indicate that, as a result of a number of different departments ordering similar goods, you came to have an endless multiplicity of types and a great overlapping of contracts, which lead not only to waste but to establishing a hindrance to adequate supply. That I will explain, if I may, in detail when you revert to it later, but it relates to this same issue of the concentration of authority with regard to supply and design, and provides a signal illustration of the need for it.

Then the next group of paragraphs, paragraphs 55 to 61, relate to what I think cannot be exaggerated from the point of view of its financial importance, and that is the control of prices and the general cost-accounting system which we had to develop in order to safeguard expenditure. In the earlier part of the statement of evidence I give the reference to my being put in charge and establishing Sir Hardman Lever and a number of other gentlemen in charge of this business and obtaining adequate powers for dealing with it. That matter is indicated in paragraph 13, and in the exhibits I give chapter and verse by way of one or two illustrations as to the enormous economies which arise out of the establishment of that system and refer *inter alia*, in paragraph 22, to the powers that we obtained in the Munitions of War (Amendment) Act, which gave us the authority to deal with costs and prices.

Then paragraphs 62 to 67, shall I say, merely summarise what has gone before. These paragraphs are rather important in one other respect—in considering what should be the extent of the state manufacture. Whatever the system may be, one has to consider what it is you mean by “munitions of war” and a rough classification is indicated in those paragraphs. In paragraph 62 you will see that I speak of “products manufactured for, and only for, the purpose of war” and I call them for the sake of convenience Group A, because one knows that you are bound to consider the practical question as to where you are to stop, or where you are to begin. I suggest there that, for these purposes anyhow, it is practical, and we found it entirely practical, to make a sufficient distinction, and I think the definition there suggested would be found to be a useful working rule, and to be good enough. It is true that cast iron, which is used on the outside of a bomb, is used for tens of thousands of purposes, but a bomb full of explosives is not; it is only made for one purpose, and that is war. Then there is Group B, referred to in paragraph 63, which presents more difficulties when you are prescribing the extent to which the state supply department should be responsible, and perhaps I might just read three or four lines.

575. Chairman: If you please.

Dr. Addison: “In another class there are supplies of a lethal type, such as some explosives and certain chemicals which are used in industry and are also of a type required for war purposes.

* Appendix, pp. 134-5.

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It should, however, be remembered that some explosives required for war purposes are different from those required in industry. These will be referred to as Group B." Of course, in this branch of supply it is much more difficult to draw the line than it is anywhere else, and perhaps you will ask me questions later when I come to the specific recommendations as to what I call the establishment of adequate reserve supplies. Of course, we know that certain explosives, for instance, are used and manufactured for ordinary commercial purposes, and as such would be identical, perhaps, with explosives that you might put in a shell; but in fact the explosives that are used in many munitions, anyhow, are in a different combination from those used for other purposes, and the proportion of those of a specialised kind that you require for war explosives is different from that which you require for peace-time purposes. One illustration I give of that—in paragraph 37—is the enormous disproportion in the type of sulphuric acid which is required for war purposes and for ordinary commercial purposes in industries. The acid is, as to the bulk, required in the more *dilute* form, but for the manufacture of explosives in war the balance of requirements was completely altered, and the bulk required—not the whole, but a very great mass of manufacture of that type of thing—was in the *concentrated* form of acid, for which purpose we had to build special works, and that balance is different from peace-time requirements in any case. For those kinds of reasons I think that the government department concerned should supply itself or supply the state with such of the specialised mixtures and types as are required for the establishment of its war supplies and the reserves that are indicated. For the rest, or, at all events, most of the rest, the system which I have indicated in the conclusions would be, I think, adequate. You would not need for this purpose to expand your manufacture or control into the great variety of chemical manufacture which ordinarily goes on for commercial purposes.

But there is one exception—I have not, of course, given it in detail in this public paper—and that is the material and the highly specialised types of experiments for which we had to be responsible connected with gas warfare. That in any case, I would suggest, must be reserved to the department.

576. *Sir Thomas Allen*: I did not quite catch the conclusion of your last sentence.

Dr. Addison: I was saying, Sir Thomas, that in any case the type of material and manufacture of compound mixtures which are, or were, or may be, used for this type of thing, namely, chemical warfare, clearly form a readily definable class used for war purposes only—that would be Group A—and should therefore be completely reserved for state control. That is the point.

Then there are other materials referred to in paragraph 64 which affect the classification. I give you one or two examples which we use in war and in peace equally in that form—glycerine, alcohol, and a dozen more things. I do not think, so far as the state manufacture of munitions is concerned, that it would be necessary to extend into that field at all. These are the three main groups which, I suggest, have to be considered.

In paragraphs 68, 69 and 70 I present a summary in specific form of the reasons for the failure of private manufacture and for the failure of the system of sub-contracting, which I think is very important, and perhaps I might be asked about that later. That is in paragraph 69. Then in paragraph 70 I deal with inadequacies of the system with regard to labour, machinery and materials. Then in paragraph 71—

577. *Chairman*: Now you come to give your definite recommendations?

Dr. Addison: That is right.

578. *Chairman*: May I suggest that you should read those, if it meets your view.

Dr. Addison (reading):

71. It appears to me to be undoubted that the experience of the late war points not only to the desirability but to the necessity, from the point of view of national defence, of the establishment of a state department responsible for the manufacture and assembly of all munitions of war strictly so-called. I mean the articles manufactured for, and only for, the purposes of war which I have previously referred to as Group A" (paragraph 62). This conclusion is entirely apart from the grave considerations of national policy relating to the undesirability of manufactures of this kind being in private hands for the purpose of gain.

72. There should, I suggest, be a single supply and manufacturing department for all war departments, the following being some of the more prominent considerations:—

(1) There were numberless instances of the difficulties, and sometimes waste, which arose out of different service departments seeking to obtain the same materials as well as machinery at the same time. Because of those difficulties the supply of materials and machinery became progressively concentrated in the Ministry of Munitions. The advantages of unified responsibility are manifest, where imported supplies are concerned.

(2) The disorder and possible waste and loss to the efficiency of supply are equally cogent in the case of manufacture either in national establishments or by private firms. The overlapping of orders and divided responsibility in the case of aircraft supplies is a striking example.

(3) Similarly great economies as well as improvements in manufacturing efficiency are obtainable through a costings system under unified and experienced direction. The difficulties that arose between the Ministry of Munitions and the Admiralty over cordite prices, of which details can be supplied if desired, furnish an illustration of the losses that may arise from divided responsibility.

(4) The processes of transport, assembly, inspection and filling are those in which unless there is unity of direction there must be unnecessary delays and disorder.

(5) The work of design and experimentation is inseparably associated with that of manufacture and supply, and, as the evidence has shown, serious difficulties and delays occurred during the first year of the work of the Ministry of Munitions because design had not been associated at the start. The records of the Inventions Department of the Ministry (which can be supplied if desired) are a good example of how an alert central department can be directed to make use of and develop not only the suggestions of its own experts but those which come from outside—I hope you will ask me about this later—The cases in which this department assisted to bring up to a workable form suggestions often of quite humble people were very numerous. There were some thousands of cases great and small. It is certain that had it not been for these arrangements very many useful ideas would never have been made use of. The case of tanks referred to by Sir Eustace D'Eyncourt—who was himself the chief designer in the Admiralty—is an example of how a central department (the Ministry of Munitions was responsible for tank supply) was able to make use of and provide facilities for the development and perfection of outside suggestions. The Stokes mortar is an other example.

(6) There is a final and most important reason for the existence of such central department as is here suggested, namely, that only by such an

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agency would it be possible to mobilise and secure the rapid utilisation of appropriate private manufacturing capacities to provide expansion in the case of war. This consideration calls for suggestions as to how such a department would operate.

73. (1) The department would be responsible in peace time for the supply and manufacture in state-owned factories and establishments of all war munitions indicated in Group A (paragraph 62), and for all manufactures relating to chemical warfare that might arise in Group B (paragraph 63), and for such others as circumstances or new developments might bring into the category of productions for war use only.

(2) It would manufacture and store such reserves as might be deemed necessary. The number of months of prospective war use which such reserves would be designed to cover would be conditioned in different cases by the rapidity with which supplies could be augmented in the event of war by the increase of state manufacture or by the mobilisation of the resources of appropriate private manufacture.

(3) In the case of some specialised types of machinery it would probably be found desirable also to establish certain reserves for expansion purposes in the state factories since private manufacturers could not be expected to maintain them—I hope you will ask me about that—.

(4) With regard to explosives referred to in Group B, it would, I think, suffice if the state department manufactured the specialised supplies used in chemical warfare and only such explosives as were required for its peace time activities and for reserve supply. For expansion in time of war, it should have appropriate arrangements with private manufacturers, who normally produce allied products for a great variety of civil industries.

(5) The department would require to take and keep sufficiently up-to-date records of the quantities, types and location of such machinery and materials as might be required for different purposes.

(6) It would prepare and have available sufficient supplies of drawings, specifications, gauges, etc., as might be necessary to facilitate the expansion required.

(7) It would have in readiness an appropriate classification of private establishments and be prepared with the necessary control orders in respect to them as well as in respect of materials supply.

579. *Chairman*: Is there anything more you would like to say before we ask you some questions upon what you have said?

Dr. Addison: I think it will really emerge in answers to questions.

580. *Chairman*: Very well. There are one or two questions I want to ask in reference to what I may call the historical part of your statement. First of all, with regard to some statements in paragraphs 62, 65 and 68. With regard to paragraph 62, you there indicate that, in your view, for the purposes of the consideration which you desire to put before us, you classify munitions into Groups A and B, but have you in your own mind considered what would fall within Group A and what would fall within Group B and the practical difficulties connected with the considerations arising under those heads?

Dr. Addison: Certainly, I have considered that. I think the definition in Group A is sufficiently explicit; it would be a good guide. Clearly all the types of trench warfare supplies used for the purpose of war, tanks, machine guns, and guns of every kind, obviously come within that definition. I quite agree with you, Sir, that there would inevitably be margins everywhere, which would have to be dealt with in a practical spirit; but I feel quite sure myself that practical sense could easily cope with

them. It is perfectly true, shall we say, of trousers, that a man wants trousers in war of different colour and different material, it may be; but, still, a civilian wants trousers, and I should not describe khaki trousers as munitions of war; they are not used for purposes of war only, but bombs are.

581. *Chairman*: Are you familiar with the proposed convention for the suppression of international trade in arms and munitions, which has been put forward by the American representatives?

Dr. Addison: I have seen it, but I should like it recalled to my mind.

582. *Chairman*: They classify munitions and implements of war under different categories.

Dr. Addison: Yes, I know.

583. *Chairman*: Are you prepared to accept their view?

Dr. Addison: I would not answer that question without notice. I should like to study their view a little more carefully. I am quite sure that good sense would arrive at a practical working definition, but, of course, I should have to refresh my mind as to what that particular recommendation is.

584. *Chairman*: We have had a good deal of evidence and discussion as to articles which, in their initial stage, in their innocent stage, would not be lethal, and there is a question as to at what point they become lethal. Now, take a ship or an aeroplane; into which of your Groups A or B would you put those?

Dr. Addison: The building of warships I should put into Group A, because you do not build a submarine except for the purposes of war; therefore those you would build in Admiralty yards. A ship, however big, is after all built in pieces, with armour plate and guns and every imaginable form of equipment. Whilst the manufacture of the ship or the assembly of the parts into the form of a ship is clearly Group A, there will be many pieces that go into that ship (we will say the chairs in the cabins, and a hundred other things) which I should not regard at all as coming within the definition of Group A; you would obtain them in the usual way; but the manufacture of the thing as a ship in a shipyard, wherever you get your bits from, that is Group A. I should have said. Aeroplanes, I agree, present a much greater difficulty, but so far as an aeroplane is designed and manufactured for military purposes, then it should go into Group A. It is true that ships and aeroplanes used for civil purposes, and built and designed for civil purposes, could no doubt readily be adapted to war purposes; one has to recognise that; but I should not necessarily, for this purpose, put that into Group A, any more than I should the building of a merchant ship. After all, we took merchant ships and we readily adapted them to various war purposes, just the same as we could a civil aeroplane, and they are quite parallel cases; but I should not put the building of merchant ships into Group A or the building of civil aeroplanes into Group A. I think it would be perfectly practical to make a distinction. It is true you might have similar parts in it, but you have to face up to these practical difficulties and deal with them in a sensible way.

585. *Chairman*: There is another matter about which I want to ask you, and that is that you have emphasised in your statement the saving of cost which resulted from, first of all, being able to check the prices that were charged by the private manufacturers, and also by the setting up of a costings system. Of course, in considering this matter as a whole, one has to set off, has not one, the saving such as that which was effected under the organised system and the increased cost that there would be to the state by adopting the suggestion you have put forward of nationalising the manufacture?

Dr. Addison: I am afraid I cannot accept your suggestion, Sir. I do not think there would be increased cost, for this reason: Take a simple case like machinery; you see, the idea—quite sincerely held—that you would get the expansion you require

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by keeping alive, say, a certain potentiality of manufacture by private firms, is, I suggest, based upon an inadequate consideration of what is actually involved. You see, you cannot expect a private manufacturer to establish and keep a machine (often a very expensive machine) unless that machine is being steadily used; you could not expect him to keep a machine idle half the year—a great and complicated plant. The cost of keeping that machine must, quite properly, increase his overhead charges; that is the only way the man can deal with it, and quite fairly; whereas if the state itself erects that machinery for turning out its requirements you do not have anything like the same machine waste as you have by scattering over a number of different places machines that are only inadequately used. That must be so. Therefore I demur a little to your suggestion, Sir, that it is necessarily more expensive. It depends on what you mean.

586. *Chairman*: It does not quite meet the difficulty which was in my mind. I am only thinking over these things, but one has to assume the possibility of war.

Dr. Addison: Yes, of course.

587. *Chairman*: One hopes that it may be very very remote. Assuming that the state takes over the whole of the manufacture of the necessary munitions of war, it will manufacture and store, and when it has manufactured all that it thinks is possibly necessary for store, what is to happen? Is it to shut down or is it to keep the establishment going? If it is to keep the establishment going and somehow employ the men, that is where the additional expense to the state comes in, to my mind.

Dr. Addison: I suggest it is a difference, shall I say, if it is a difference at all, of *locus*. It would be, of course, for those in charge of this business to design a practical programme which would be spread, as far as may be, over the whole period of a year. It is true that the time might arrive when the state had manufactured and stored an adequate reserve of shells, we will say, or of guns, or whatever it was. Well, the machine that made the guns—if at that time it had ceased to be used in the state factory because, we will say, they had all the guns they required for their reserve—would be idle, it is true, unless some alternative use, which is very unlikely, could be designed for it; but if that machine were in private works it would also be idle, and therefore I suggest it is only a question of where your specialised plant is situated. If that specialised plant is not being used, then it would necessarily be idle; but one has to remember that, spread over a large number of different shops and firms, as it necessarily is, you are bound to take into account the exaggerated overhead charges which those firms must necessarily be involved in. If you refer to Exhibit C—Sir Hardman Lever's report to me of the 24th January, 1916—you will see that he gives there the reasons for the high establishment charges, the reasons why the firms themselves set up their very high prices.

588. *Chairman*: That rather bears upon what is troubling me. Under existing conditions, when this was published the private firms were carrying all that expenditure?

Dr. Addison: That is right.

589. *Chairman*: But under your system, or under an entirely altered system under which it would be nationalised, it would be the state which is carrying that?

Dr. Addison: No; excuse me. The state pays for it to the private firm all right, because the state pays so much more for the products—it's armour plate or Maxim guns, or whatever it is which it gets from the private firms—but those costs are put by the private firm into the price which the state pays. The state pays it in another way, that is all.

590. *Chairman*: But the state only pays an excessive price when it wants the article which the

firm is manufacturing; it has to keep the establishment going up to a certain state of efficiency, whether there is war or whether there is peace?

Dr. Addison: That is true; but I suggest to you that the facts show—I am not blaming them for it at all; it is a fact, and they are bound to do it as business men—that the firms put on to their price a very adequate margin for those overhead charges. That, if distributed over a large number of different firms, they necessarily exaggerated the overheads which the state had to pay for in its supplies. Is it true that the state might have to maintain an establishment in which some machinery would be idle, but it at least would be concentrated. 591. *Sir Philip Gibbs*: At the present time, under the present system, you see, these private manufacturers have other markets than the national market, and that is why they are enabled to keep the plant going.

Dr. Addison: That raises another question. If you look at Exhibit C, paragraph 5 (b) (1),† you will see there that Sir Hardman Lever and his friends dealt with that very point. The firms alleged that they had to support in some cases a costly, world-wide selling organisation, and that is why they put the price that the government had to pay so much higher; so that we paid it in the long run, although it was indirectly.

592. *Chairman*: There is one other point which has been put to us in reference to this particular point by some of the witnesses, and I should like to ask you your view about it; because they say that one of the difficulties in the way of nationalisation—and assuming that there is to be no emergency for a long time—will be the difficulty with labour; that if you have a large staff of labour to commence with, when you have completed your stock what are you going to do with your labour?

Dr. Addison: I suggest that a practical problem of that kind is one which would necessarily be dealt with by a sensible consideration of all that was involved. We have to remember that if you have labour employed on a job in one shop, and that particular work comes to an end, that does not necessarily mean that labour cannot be used for something else.

593. *Chairman*: It cannot be used in a national factory for anything else.

Dr. Addison: Yes; but may I come to the point?

594. *Chairman*: I beg your pardon; yes.

Dr. Addison: One has to remember that some of these supplies are more urgent than others, and you have priority, and you would necessarily design the spread of your labour not only with a view to producing what you require now, but also having in mind the priority of importance of your requirements. In some you could spread the work over a longer period. Those things which could be made quickly would not be required so soon. I suggest that that necessarily would involve a successful adjustment of your labour distribution according to your programme, spreading it as well as you could. I think that in any case, seeing the enormous advantages which would arise from the concentration, the labour waste (and it is clear there must be some) would necessarily be less, because instead of this being distributed over lots of other places you would have it more manageable and you could use it for various purposes, as we found.

595. *Chairman*: In the case of a long peace there must come a period, and in every conceivable re-arrangement of labour there comes a time, when in every department you are fully stocked up, and then what is to happen?

Dr. Addison: Naturally, in a prosperous time of that kind, let us hope that other industries would readily absorb your labour, but that absorption would apply whether the goods were made in private factories or whether they were made in a government factory.

* Appendix, pp. 120-2.

† Appendix, p. 120.

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596. *Chairman*: It is easier for a private firm to say to a man, "You can go," than it is for the state, is it not?

Dr. Addison: Yes, it is; but, at the same time, you have to remember that the state must necessarily maintain its key men, and it has to face up to the importance of doing so. I myself, from my experience, do not think that when a state enterprise comes to an end it has any more difficulty in disposing of labour, or that they stand a less chance of getting a job than other people. When a state builds something, whether it is houses or guns, it does not make any difference as far as that is concerned; when the job is done the labour has to—

597. *Chairman*: I was thinking of the trouble (in some of the documents we have had before us) that there was at Woolwich, when there was a proposal to discontinue Woolwich.

Dr. Addison: Yes, of course that is so, and it would be so in any case. That was the question of moving Woolwich, but I think that your difficulty of unemployment is only in the one case more readily vocal than it is in the other. The man ceases to have his job whether the thing is being made in a private factory or in a state factory; it makes no difference. In the one case he can make his grievance more readily listened to, perhaps, but he is out of his job all the same. As far as the quantity of labour is concerned, it is only the distribution that is altered.

598. *Chairman*: You understand that I am only putting these matters to you because they are difficulties which have been presented to us either by other witnesses or by the documents?

Dr. Addison: Yes. May I just make one observation before we leave this point? I am quite sure that the bulk of labour requirements, in the light of the output you are planning, in the case of concentrated management such as I am suggesting—with the utilisation of labour under proper management, of course—would be much more economical; you would not require such a big floating amount of labour to draw upon, some of which was periodically unemployed and some of which was not. I think that on the whole, with successful management, your labour strength for the same production would be considerably less if the management was concentrated, and therefore the possibility of waste would be diminished. I am quite sure there would be an enormous increase in the use of labour in the production of goods.

599. *Chairman*: One other question about the historical part of your document, and that is the contrast that you make between the failure of the private firms to fulfil their contracts and the fact that Woolwich was able, apparently, to supply all that it contracted to supply. From the point of view of the private firms, I assume that they met the difficulties that you indicate in your memorandum—the difficulty of getting labour, the difficulty of getting material, and the difficulty of persuading private firms to let them have their men, and so forth—and on top of that, of course, the demands were quite exceptional, whereas in the case of Woolwich they had not those difficulties and their contract was a comparatively small one?

Dr. Addison: Well, Woolwich had not the same difficulties in one sense, because it had an established experienced personnel concentrated upon that type of work.

600. *Chairman*: That is it.

Dr. Addison: But, if I may say so without wishing to be unkind, the reason why Woolwich more than lived up to its promises was that it only made promises in accord with what it thought it could do; whereas what happened with the private firms was that they undertook deliveries which, directly the engineers examined their capacities for production, they reported without exception that they should not have undertaken, because they could not manufacture them even if they were going on all the time. The reason, if I may so, why Woolwich

had a better record—I am not wishing to suggest any unkindness, it is just as it happened—is that Woolwich surveyed its promises with a strict regard to its productive capacity, whereas the private firms—I am not blaming them—made their promises with regard (a) to their own productive capacity, and (b) to what they thought they could get by sub-contracting or other outside methods. It was the other outside methods and all the rest of it which were unfortunately far from being realised, and they made promises in other cases beyond what they could fulfil. I suggest that that involved the state in serious danger, because it relied upon promises which were not sound promises.

601. *Chairman*: I was going to ask you some questions now upon your conclusions, if I might, beginning with paragraph 71. Is the foundation of your proposal that all private manufacture of munitions of war (using that in the widest sense) is to cease?

Dr. Addison: In Group A, yes. I think that all Group A should be under state manufacture.

602. *Chairman*: And that means that it must be stopped; private manufacture must be stopped. How do you propose to stop it? Do you propose to compensate the private firms, or are you proposing merely to refuse to give them the orders and forbid export?

Dr. Addison: In the first place, may I say that the evidence I put before you was deliberately restricted to what I myself had experienced. I thought that would perhaps be more valuable. Therefore I did not go at all into matters which had not specially come within my own first-hand experience. So far as this evidence is concerned, it is designed to show that I am fully satisfied that as a method of the state supplying itself with what it requires in munitions of war, this reliance on private manufacture is a bad method and has proved to be bad, and so far as the state's requirements are concerned, that the method which I suggest is the one we ought to adopt, that conclusion being based upon the evidence of what I myself know. I have deliberately restricted myself to that side of the case. I quite recognise, of course, that the other consideration will have to be dealt with.

In reply to your question I will say what I think about that. In the first place, I am quite sure it would be entirely impracticable for the state suddenly to close everybody down without compensation. That would not be done; it is not fair; and therefore it is perfectly true that at the commencement of a system of this kind it would be necessary, probably, if shops were taken over, that some of them should be taken over for the time being in the transitional stage for state use. Some could be adapted or would be adapted, as we know, and were at the end of the War, for many other purposes, and it would be necessary, of course, to deal fairly and squarely with the different matters concerned. It would be difficult, but it would have to be dealt with. The same issues arose in connection with the transfer of work—I am now taking the point of the cessation of manufacture by private firms—at the end of the War, and I myself, in a set of experiences that do not come into this evidence, was Minister of Reconstruction, and it was my business as such to be in charge of the various groups which were concerned in drawing up our programmes for the resumption of peace-time activities and the cessation of war-time activities, and we had to elaborate armistice programmes for the alternative of either summer or winter cessation of war. This possibility of the use of private firms' equipment for other purposes was considered in great detail. There was some very valuable evidence by engineers and others on the matter. I know for myself, because I had two or three conferences with representatives of one or two of the leading manufacturing firms, and we

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did help to get them post-war orders of a kind for which their machinery was appropriate and to which it could be adapted. The same kind of good-will and assistance would necessarily have to be applied in a case of this kind.

The manufacture of orders for other countries is a much more difficult question. With regard to the transfer to the state, provided you recognise that you are going to wipe out a man's good-will and business, of course, you have to pay for it. That is part of the price, and you as honest people have to pay the price. So far as the international side is concerned it is rather more difficult, and relates to international conferences and understandings. I suggest that in any case it would be much easier to deal with the international issues that are involved if the control of the supply were in the first instance in state hands and you were not embarrassed all the time by the dozen and one cross currents of interest which you would have to placate or deal with if you were trying to deal with it under the existing system. There would have to be an international convention, I suppose, so long as this kind of supply went on, for the supply of states that were not able to supply themselves. That is the only way in which it could be dealt with, but in any case it would be easier to deal with it if you had the thing under your command in the first instance than if you were dealing with it with a hundred and one separate agencies each clamouring around you as to how they were being affected by what you decided. I believe myself that it is impossible—practically impossible, anyhow—to deal with the restriction of supplies fairly to outside interests under the existing system (assuming you could refuse to give a licence); but it would be very difficult to operate with fairness.

603. *Chairman*: There is only one other matter I want to ask you about, and that is under subparagraph (6) of paragraph 72. You are there contemplating expansion, and you say: "There is a final and most important reason for the existence of such central department as is here suggested, namely, that only by such an agency would it be possible to mobilise and secure the rapid utilisation of appropriate private manufacturing capacities. . . ." What are you visualising there under the heading of "private manufacturing facilities" when all private manufacture of armaments has been stopped?

Dr. Addison: That is a matter of great importance. You see, the point I am making there is that the system here envisaged enables you to obtain the more rapid expansion that you require or may require, because, as is set out here, one of the chief obstacles to rapid expansion through the reliance upon private firms, apart from what was in their own works, was that the system of sub-contracting very largely broke down. It broke down for various reasons: first, the sub-contractors preferred to deal with the state if they could; second, the parcelling out of orders to sub-contractors or for sub-contracting was very much delayed, often because the firms wanted to see what they could do themselves in the first instance; third, it was held up because sub-contracting in any case depends upon an adequate supply to the manufacturer of gauges, specifications, drawings, and all the rest of it, which the private manufacturer had not in quantities. Naturally they had gauges for their own requirements, but they did not make a lot of spare gauges for other people; you could not expect them to do so. For those and other reasons set out in paragraph 69 the system of expansion by this existing system proved to be quite inadequate. Now, I suggest that the only way in which you could mobilise and use private manufacturing facilities is by a system of this kind. Lots of machines say could be used for turning a piece of a fuse or a piece of a shell—it requires adjustment in the machine, various jigs and what-not are introduced—but there was no matter on which our experiences

were more convincing than the claim that there was some special art or mystery behind this kind of manufacture. Any expert or competent manufacturing engineer can turn his machine to the manufacturing of this or that with complete readiness provided he is supplied with the necessary specifications, materials, drawings, gauges, and the rest of it, and he could just as well make a part of a fuse as he could a piece of a sewing machine or anything else. By taking the census of machinery referred to in the next paragraph (paragraph 73). . . If you look at (5) and (6) and (7) in paragraph 73 you will see this statement, namely: "The department would require to take and keep sufficiently up-to-date records of the quantities, types and location of such machinery and materials as might be required for different purposes. It would prepare and have available sufficient supplies of drawings, specifications, gauges, etc. . . ." That means that the central department would have, of course, or should have anyhow, an adequate statistical side with all these various essentials kept up to date, and by the distribution of them amongst the private manufacturers who are manufacturing all sorts of things now, but who could readily be turned to manufacturing war materials as they were—

604. *Chairman*: May I interrupt for a moment? I only had in my mind as to whether you had any specific private manufacturers in mind. If it simply means anybody and everybody who can lend a hand, I follow.

Dr. Addison: Not quite that. You see, your classification of private manufacturers will be in groups. There are certain manufacturers (and there would clearly be) whose machinery and equipment and all the rest of it would be more adapted for manufacturing A rather than B, and your classification would be designed to make use of that. But by having your classification and all the rest of it available you could readily bring into production all that great mass of productive capacity which is scattered and now being used for other purposes.

605. *Chairman*: Yes, I follow. That is all I think I want to ask you.

Dr. Addison: Apropos of that will you look at paragraph 46. You will see that we had to deal with that very difficult matter quite early on. We had to take a census of machine tools, machinery, and so on, straight away, and we found a lot of machinery which could be used advantageously for our manufacturers which was either not being used, or standing idle, or perhaps being used for something else. That census of machinery and machine tools, and all that went with it, as a matter of fact did more than almost anything else in the early days to enable us to open up the scattered manufacturing capacities which existed up and down the country and which was closed to us until we had obtained that information and the powers of dealing with the machinery, and so on. Perhaps I might on that say a word about gauges. This is dealt with in paragraph 51. I may tell you that a shortage of gauges, and people who could use them and make them, perhaps delayed the Ministry more than any other one thing. It depends on what it is; but, as you are aware, a thing like a fuse is made of a very large number of different parts fitted together—complicated little pieces of mechanism—but each one has to be gauged to an extremely fine point of accuracy. The person who manufactures fuses has his stock of gauges and that is all. We could not use private manufacture for lots of vital articles for quite a time because we had not got the gauges which were necessary for their use and we had to mobilise all sorts of people such as jewellers from Hatton Garden, and so on, who could make gauges and who could work to that degree of accuracy which is necessary for the production of gauges, master gauges, and so on. There is perhaps no branch of the work of a central department such as I have mentioned which plans

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ahead for the possibility of expansion which is of more importance than this particular provision which is referred to in paragraph 73 (6), namely, an adequate supply of drawings, specifications, gauges, etc. It would be a very important branch of the duty. It is indeed the only way in which you could open up the scattered manufacturing capacities of the country, and it was one of the reasons that it was not the business of a private firm to make an extra supply of gauges—you could not expect them to do it: they are expensive things—

606. *Sir Kenneth Lee*: Surely Woolwich might have done it before the War?

Dr. Addison: Yes, so it might.

607. *Sir Kenneth Lee*: It could do it now in preparation.

Dr. Addison: Yes. Your central department would have to have them made. That is my point; but so long as Woolwich has to rely on someone else to do it your hope for the expansion could not in fact materialise. The point I am making is that the only way to obtain expansion is for your central department to make them, and it must keep a supply. Woolwich or anyone else could have done it.

608. *Sir Kenneth Lee*: Woolwich is the state. The state could have been prepared.

Dr. Addison: Yes, but it was not, because it relied upon this other system.

609. *Professor Gutteridge*: It could be done under our present system, surely?

Dr. Addison: Certainly; you could have a great state supply of gauges and specifications clearly.

610. *Professor Gutteridge*: It is a matter for Woolwich Arsenal as things are now.

Dr. Addison: I would not like to say whether I would make them at Woolwich; I should require to look into the details of that as to whether Woolwich would be a suitable place.

611. *Sir Kenneth Lee*: Gauges could be made by the state in anticipation without it setting up this organisation which you have in mind.

Dr. Addison: Yes. There would have to be some central department for design, inspection and testing, otherwise they would not know what they wanted. You must remember a gauge denotes that you know what it is you are going to gauge; in other words your specification must be precise and all that goes with it; it all hangs together; inspection, design and all that hangs together because, after all, the gauge is only the ultimate expression of what you are going to gauge.

612. *Chairman*: Complete preparation on the lines you have just been suggesting might be possible and you could still maintain private manufacture of arms if you wanted to.

Dr. Addison: Of course you could supply gauges.

613. *Chairman*: It is not necessary to abolish private manufacture in order to be completely prepared from the point of view of design, or gauges, and all the rest of it.

Dr. Addison: So far as the limited purpose of the supply of gauges is concerned, clearly not. You could have a state manufacture, or state supply of gauges specifications and drawings, and so forth, in what abundance you desired without doing the other; but, of course, the other is dealt with in other parts of the evidence for other reasons. But my only point is that that is an essential part of your machine and it is essential to rapid expansion. That is all.

614. *Dame Rachel Crowdy*: I have read your memorandum, which is extraordinarily interesting, and I may say it brings to one's mind a great deal of horror in remembering the early days of the War. In paragraph 15 you say there was a saving of £400,000 a week, when you changed to government manufacture from private manufacture. Then in paragraph 16, where you give a description of the discussions with Nobels on the price of cordite, and later in other paragraphs when you speak of the

tragic failure and you talk about the situation which can only be described as chaos, I feel you really draw a picture in connection with private manufacture which must give pause to the people who feel that we cannot give up private manufacture because of the security of the nation. You have made, I think, a very strong case, if I may say so, for national control, or, rather, national manufacture rather than private manufacture; and I do feel that your memorandum rather differs from others which have been put before us up to the present time because it really is based on fact and not on fancy or ethics or a cause of disarmament or peace, or whatever it may be; therefore it makes a great impression on me personally.

Dr. Addison: I can assure you I have not exaggerated it.

615. *Dame Rachel Crowdy*: I am sure you have not. In answering the Chairman just now you spoke of the great unpreparedness of private manufacturers when War broke out implying a false guarantee of security, and that the Government was not prepared because they were relying on private manufacturers. Do you believe under your system which you propose that needs such as the needs of 1914 could have been met immediately in the way they were not met by the private manufacturers? I should like to get that clear in my mind.

Dr. Addison: I am quite sure they would have been met much more rapidly. I should not like to say immediately. May I say that "unpreparedness" is not quite the term I would use. You see I say it is not fair to ask a private manufacturer to retain out of use capacity which he is not ordinarily using in the course of his business. You cannot expect him to do it; it is not fair to ask him to do it. I say the incapacity for expansion, such expansion as was required and might be required, is inherent in the system because you cannot fairly expect a man to expand that way; it means keeping a lot of stuff idle. I am only making that comment with regard to your expression "unpreparedness". I say it is the inability which is inherent in the system; it cannot expand as it was required to expand. Then in answer to your last question I am quite sure that if we had had a Ministry of Munitions at the beginning of the War we should certainly have been better equipped sooner than we were. It was only after nine months of misery and struggle that we started doing it. We should have got there sooner; how much sooner, of course, I could not say, but we should certainly have got there a lot sooner.

616. *Dame Rachel Crowdy*: I was also very much interested in paragraph 72, sub-division 5. You have probably read Sir Eustace d'Eyncourt's evidence at a previous hearing of this Commission, and you realise that he and you are in complete opposition to each other?

Dr. Addison: I do.

617. *Dame Rachel Crowdy*: Because he said conditions in government service are such that they have not the same chance of developing the inventive capacity of which they are capable, and later he says his experience shows that that attitude exists widely in various departments of the government service. You probably read that yourself.

Dr. Addison: I did.

618. *Dame Rachel Crowdy*: "It does not make for great improvements or help inventive genius." You say exactly the opposite; you say the records of the Inventions Department of the Ministry are a good example of how an alert central department can be employed to make use of and develop not only those inventions which come from its own experience, but those which come from outside. I should be grateful if you could expand that a little.

Dr. Addison: Certainly. There are two matters. First Sir Eustace d'Eyncourt was himself, as you are well aware the chief adviser at the Admiralty, and he himself, with Mr. Churchill, at that time was very largely responsible, with others, for the initiation of the tank idea. I think Messrs. Fosters of Lincoln—

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619. *Professor Gutteridge*: Do you mean the agricultural machinery people?

Dr. Addison: That is right. It was a firm with experience of that type of caterpillar manufacture which was brought in to help in the manufacturing side. As the thing developed, the so-called Tank Corps got established, which, after various troubles, which I need not recite, was transferred to the Ministry of Munitions; shall I say it was said at the time that we gave it a home? It is because we, the state department, gave it a home and placed at its disposal the manufacturing capacity which was at our command that it could develop the tank and did develop the tank. It is true that Sir Eustace d'Eyncourt very largely inspired it.

620. *Professor Gutteridge*: It was made at Thetford, was it not?

Dr. Addison: The main parts were made at Lincoln.

621. *Professor Gutteridge*: What was done at Thetford in that heavily guarded area there—do you remember?

Dr. Addison: Perhaps I might ask for notice of that question. I will bring up the details if I am coming again on Friday. I understand I am coming again on Friday, if necessary, and I will look up the papers.

622. *Professor Gutteridge*: There were a good many people concerned in that.

Dr. Addison: Yes, there were. As a matter of fact, in the manufacture there were only three or four of us who knew what was being done; it was a very carefully guarded secret. I myself do not know now, until I hunt it up, how the orders for parts were distributed; but I may tell you it was done with the greatest possible secrecy. I think the most vital parts were done by Messrs. Fosters, who very heartily co-operated with the department, but the point I am making in reply to Dame Rachel Crowdy's question is that you could not have a better illustration than the tank provided, in fact, of how an alert department placing at its disposal the manufacturing capacity at its command did give a great opportunity for a new idea. Honestly, although I had to do with it from the very start, it was a certain group of people at the Admiralty—I know Mr. Churchill was very helpful, and Sir Eustace d'Eyncourt was one of them. That is a good case, if you want one, where an idea was developed by the co-operation of a central department making use of the capacities of private persons. Now take the other part of the subject, and if it will be of interest I shall be glad to supply a report which was made to me by Sir Ernest Moir whom I appointed to be the head of the Inventions Department. The reason why we established an Inventions Department was because we found a thousand and one suggestions—or at least it was claimed (I will put it that way)—for good ideas were not getting a fair chance. Sir Ernest Moir and others with him formed the Inventions Board, and we deliberately said: You can send all your suggestions; where they are good they will be helped and developed, and if they are adopted you will get credit for it. Well, I need scarcely say that at first we had a great deal of chaff and we had to look for the wheat. That is what you would expect; but after a short time that stage was got through, and in Sir Ernest Moir's report on the year's working of the Inventions Department you will find they adopted, or modified, or made applicable, a very large number of suggestions which had come from all kinds of people and which were embodied in fact in the war machinery.

623. *Professor Gutteridge*: Who were those people, roughly speaking?

Dr. Addison: I think it would be better if I sent you the report.

624. *Professor Gutteridge*: I was only asking the question for this reason; there were people other than civil servants, I take it?

Dr. Addison: Hardly any of them were civil servants—foremen and men in works—they varied from people like Sir Wilfred Stokes, who is himself the head of a very large and important manufacturing concern, down to the humblest workman, and, of course, which is natural, all kinds of ideas were showered upon these gentlemen which they had to winnow as best they could. But they did winnow, and the point I am making is that after they got the system in working order, in fact it enabled large numbers—not a few—of people to get suggestions adopted and used, who, under the existing system, would never have won through at all, and the evidence is abundant in proof of it. I know they got through. It is true that we hear a lot about departmental red tape. That does well for certain newspapers, who know nothing about it; but it depends how you run it.

625. *Chairman*: Yes; but you are rather convincing me that you agree with Sir Eustace d'Eyncourt because a great many of these things which were turned into valuable inventions came from outside government departments.

Dr. Addison: Yes, but—

626. *Chairman*: Wait a moment; and when they came to be utilised they were not utilised by a government department in the ordinary sense but a very special department of munitions that was dealing with matters not from the ordinary government point of view but from the point of view of an outsider.

Dr. Addison: Yes; but the point I am trying to make—and I will send a copy of this report because I think it will convince you—is that those suggestions never could have been used. That is my point.

627. *Chairman*: Are not we dealing with two different things. You are saying the advantage of the Munitions Ministry enabled them to be dealt with.

Dr. Addison: The establishment of this organisation, yes.

628. *Chairman*: Yes, and that, according to Sir Eustace, would be a treating of the matter from the point of view of a layman rather than from the point of view of a civil servant.

Dr. Addison: After all, what is a civil servant. 629. *Chairman*: I am not saying which is right; I am only saying you are gradually bringing yourself into the same category as Sir Eustace.

Dr. Addison: I am glad we think alike; I did not realise it by his paper. I thought we thought quite differently. My point is this, that a department of this type proved to be necessary to enable good suggestions to be examined and made use of. 630. *Sir Philip Gibbs*: Do you think a state monopoly of manufacture would have the same open mind?

Dr. Addison: If the head of the department had not, he ought to be replaced by someone who had. That is all.

631. *Sir Philip Gibbs*: It is not a psychological question?

Dr. Addison: Not at all. I was the head of a department. It depends on whom you have got there. Sir Ernest Moir had his specialised committees that examined these things and some of the members were civil servants and some of them were other people.

632. *Chairman*: I think we are travelling away rather from Dame Rachel Crowdy's question.

Dr. Addison: I thought Dame Rachel Crowdy was asking me why I feel that a central department of this kind is necessary, successfully conducted of course, in order to give a proper chance for inventions, and so on, to be used. Was not that your question, Dame Rachel Crowdy?

633. *Dame Rachel Crowdy*: I can imagine in war it would be very much as you say, but war, after all, erupts invention, does it not?

Dr. Addison: Of course.

634. *Dame Rachel Crowdy*: But in peace time if you have an inventor going to a private manufacturer would not there probably be more money available,

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and more quickly, than there would be if he went to a central government department where, after all, you have to think of the government budget and go through a good many departments before permission is given for anything to be done at all.

Dr. Addison: No, I do not. I am sorry to say you will find these records show that under existing conditions the man with an idea has a very small chance; the number of cases that were turned down either because the man had to go through his foreman or to go to someone else or cases in which the ideas got lost—

635. *Dame Rachel Crowdy:* Or his idea might be bagged.

Dr. Addison: Yes, it might be bagged by someone else, and having seen an idea of his mate's bagged by someone else he does not put his own forward. The evidence was overwhelming as to the extent to which that kind of handicap exists, and it certainly does. Sir Ernest Moir, or the Inventions Department, got shoals of suggestions of that kind and a good many, I do not say without modification and a lot of experiment, ultimately proved serviceable, quite a lot. I know there is so-called red tape and departmental expense. The point I am on is, if you have a department or a section of a department that is set aside to do its job, it will be to the interest of the men (call them civil servants or whatever you like who are running that department) to make a success of it, just as much as it would if they were running any other department, and if the head is not a successful man then he ought to be replaced by another head. That is all.

636. *Sir Kenneth Lee:* In paragraph 65 you make a very strong case against the private manufacture of arms by the failure that occurred up to the end of May, 1915, the failure in delivery; but we have had figures that do not seem altogether to give the same kind of picture.

Dr. Addison: These are accurate figures; that is all I have to say.

637. *Sir Kenneth Lee:* May I point out that in the five pre-war years the ordnance factories supplied £1,600,000 worth odd of gun ammunition, and private manufacturers only supplied £560,000 worth odd. The ordnance factories therefore supplied three times the amount that was supplied by the private manufacturers during those five pre-war years. From the outbreak of war up to May 29th, 1915, the ordnance factories delivered 314,000 rounds of gun ammunition, whereas the private manufacturers delivered 825,000 rounds of various kinds, so that in that period private manufacturers produced two and a half times as much as the ordnance factories. From those figures it would appear that after the outbreak of war the private manufacturers did exceedingly well compared with the ordnance factories.

Dr. Addison: It depends what your system is. The system there, you see, was not to enlarge your ordnance factories but to obtain your requirements from the private manufacturer. That was the system.

638. *Sir Kenneth Lee:* Before the War?

Dr. Addison: It was the system then.

639. *Sir Kenneth Lee:* No; but before the War the ordnance factories produced three times the amount that the private manufacturers produced.

Dr. Addison: The amount was trivial; but when the War started—the last figure you gave was the War months, was it not?

640. *Sir Kenneth Lee:* Yes, up to the end of May, 1915.

Dr. Addison: That is right. During that period the system which was adopted was to rely upon the private firms to give the supplies required by their expansion and not by the expansion of the government arsenal. That was the system, and if you will look at the last paragraph of paragraph 6 of my statement of evidence you will see that although it is perfectly true that the private firms supplied

owing to that system a great many more than they had done before, because their orders had been so prodigious, in fact there were 1,500,000 deliveries against promises of 5,700,000; in other words, they had let the state down because the system was to rely upon that method of expansion rather than upon the other. The fact that during those nine months they struggled up to 800,000 is neither here nor there. They promised 5,000,000; and for the reasons I have set out they could not deliver them. They never will under that system; it will not work.

641. *Sir Kenneth Lee:* Turning to another point, you have said a good deal about the inelasticity of the present system. Is not there also a danger if you had the manufacture in the hands of one department that there would be greater inelasticity?

Dr. Addison: I recognise the danger which has to be guarded against, of course, and we ourselves had a good many struggles with the experts, but you would have them anyhow. That is why it is that in paragraph 73 I say it would be the duty of the department to make certain provisions—1, 2 and 3—for the purpose of rapid expansion, my idea being that that rapid expansion would take the form to a large extent of the utilisation of the appropriate private manufacture which is the great field for expansion in any case.

642. *Sir Kenneth Lee:* Yes, but it would be in peace time that the spade work would require to be done.

Dr. Addison: Certainly.

643. *Sir Kenneth Lee:* And do not all these things depend upon individuals in the end?

Dr. Addison: It also depends upon the system. Of course after all you must have competent management whoever does it. But it depends on the system. If you have a department charged with, say, classifying the firms that are capable of manufacturing this, that or the other, with a census of the appropriate machinery properly catalogued; with a proper supply of gauges, specifications, drawings and all the rest of it; with a proper system of arrangements made beforehand for controlling orders and for bringing into the scheme certain groups of private manufacturing capacities; if that is prepared, as it could be, and as it ought to be for this purpose, then I am suggesting that is a piece of the business of the department, and that in any case it is only in that way that you could get the expansion—you cannot get it any other way, not quickly—and that, therefore, someone should be made responsible for seeing that it is done. That must be a state department.

644. *Sir Kenneth Lee:* But those sorts of things could be done without manufacturing the whole of one's requirements by the state.

Dr. Addison: Certainly a lot of them could, of course—drawings and specifications; but for other reasons I am only saying that is a wasteful system, keeping this other machinery partly employed in private firms. It does not work.

645. *Sir Kenneth Lee:* There seems to me to be a great danger of your falling behind if you are going to rely on one department to produce all the implements of war for all the different requirements.

Dr. Addison: There is much less danger of your falling behind if some body of people are made responsible for it than there is if you have the responsibilities scattered and ill-defined as they are at the present time. We certainly fell behind, when we were put to the test on the existing system, in a very tragic fashion.

646. *Sir Kenneth Lee:* I have tried to show that it was not quite as tragic as your memorandum depicted.

Dr. Addison: Well, I was there.

647. *Chairman:* May I ask this again: Assume you have a complete and proper organisation from the point of view of expansion, would not the organisation be better able to expand quickly if it had private manufacturers of arms to call upon than

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if there were no such firms and recourse had to be to the ordinary engineer.

Dr. Addison: No, not necessarily. You see there is no magic—we have to get that out of our heads altogether—attached to the manufacture of a machine gun any more than there is to the manufacture of a sewing machine.

648. *Chairman:* Except that they have the plant.

Dr. Addison: But under my system the state would have the plant to manufacture its requirements. They have certain machines and you know where they are.

649. *Chairman:* But then are you assuming that the state will have enough machines and that it will not want any more?

Dr. Addison: No.

650. *Chairman:* If it wants more it is surely in a better position if it has only to go across the road, as it were, to people who have them already.

Dr. Addison: No; we will take machinery.

651. *Chairman:* The ordinary engineer will not have all the necessary machine tools.

Dr. Addison: A lot of them will be available somewhere. When you have a machine which is capable when ordinarily used we will say for making bicycle parts, or sewing machines, or anything you like, you will find that certain types of machine are suitable for the manufacture of this or that part of a war production; it only requires a very rapid adjustment to get it so used. The point I am making is, having your classification ready, with your machinery for invoking its rapid use ready, that is a better way of getting a bigger expansion than by expecting, which would never happen, a private firm to have a number of highly specialised machines, kept idle, because they will not do it, and you cannot expect them to do it; it is not fair.

652. *Dame Rachel Crowley:* Is not the trouble that they are not kept idle.

Dr. Addison: That is another matter, but a lot of the machines are, because a machine can be readily adapted for making different things. That is my point. Might I put this* in? This is a good case because it gives you an illustration of the kind of contractors whom we found were useful for making this that or the other. If you, Sir, and your colleagues will look at the end under "Metropolis" you will see the kind of thing I am now talking about which was very widespread.

653. *Chairman:* The trouble is that, assuming you put an end to the private manufacture of arms, you would only have all those people to call upon; they would be in existence.

Dr. Addison: They are not manufacturing arms now.

654. *Chairman:* But they would all be available to be called upon.

Dr. Addison: Certainly.

655. *Chairman:* Very well; but in addition you would have these people who have been manufacturing arms; would not that be a help to expansion. I quite agree with you that they will not be in existence if you are not going to allow them to export.

Dr. Addison: No.

656. *Chairman:* But if you allow them to export it seems to me—and I cannot see how it can be otherwise—that, under your system, if you get a complete organisation you must be in a better position to meet the emergency the more firms you have to call upon—the more there are the better.

Dr. Addison: That is true, but the engineering capacities of this country are immense, as we found, and if you have a system where you rely to a greater or less degree upon private manufacture you necessarily and in consequence rely upon that system

quite properly—it is the only way to use it. It is true that if you have firm A making machine guns for someone or other, or for yourself, in peace time, that if you have them in existence when a war begins, there will be so much more capacity—that would be so—but the point I am suggesting is that for the purpose of obtaining your supplies it would be better that you yourself had that capacity, and that in fact seeing that war productions, except in the more highly specialised cases, like big guns, we will say, are a type of manufacture for which there is an immense wealth of available material in our country which can be mobilised quickly, that the right method and the most expeditious method is to have your capacity of manufacturing on your own, with, of course, your own capacity for expansion, and to rely for your expansion on the mobilisation under the system here indicated of others rather than to rely upon them to be responsible for your supplies in peace time.

657. *Mr. Spender:* In fact the whole tenor of your evidence suggests that the state would have a far bigger permanent establishment with regard to armaments than most of us have ever contemplated at the cost of a large expenditure of capital and the keeping of very large reserves of labour. If the state is to keep clear and avoid all the troubles which you have rehearsed to us, that would be necessary, would it not; it would be a very formidable undertaking?

Dr. Addison: No. It would be, if I may say so, nothing like as expensive as the present. You are paying for it now; you are paying for it through someone else's account.

658. *Mr. Spender:* May not we put this point of view: that the payments in the matter of overhead charges, so long as these private firms are allowed to export, are divided between a good many countries and governments, and it seems *a priori* very improbable, if one country takes it all upon itself, that it can do it more economically. Your theory—

Dr. Addison: It is not a theory. Take whatever manufacture you like; after all, it is in terms of goods you want to produce when it gets down to brass tacks. You want 100 shells, or 1,000,000 cartridge cases, or 1,000 machine guns, or whatever it is. It is a more economical method of producing those things to have a factory, and so forth, equipped for that purpose and used for that purpose, than it is by paying extra overhead charges to half a dozen different people. You are paying for it all the same, and it is not going to add any more on your estimates. It will be a good deal less, as a matter of fact, because they will cost less. Take Exhibit D—the record of the meeting I had with the big firms on the 31st January, 1916—"He"—(Dr. Addison)—"said that the actual costs of production in government factories have been definitely ascertained" and certain gentleman here mentioned "urged the point that the cost of production was very much greater in an old-established firm than in a small new factory erected for one special purpose and that there were special charges, e.g., for experimental work, gun ranges, submarine testing stations, which should be taken into account." Then they went on later to talk about their overhead charges. That is so, but you are paying for it now, extra, in half a dozen or a dozen different places, and my reply to you, Mr. Spender, is that that necessarily is more expensive than if you are making it under this system for yourself.

659. *Mr. Spender:* You put before us the dangers of there being a war without sufficient power of expansion. I am not wanting to make a point dogmatically, but the getting of that power of expansion by the state, if it is to do what you suggest in your evidence it ought to do, would almost inevitably be more expensive than if the power of expansion is spread over a good many countries, as it is as a matter of fact?

* The witness handed in a confidential Report prepared by the Ministry of Munitions.

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Dr. Addison: All I have to say is that if this country is to rely upon the support of this system of manufacturing its supplies in times of war upon the precarious obtaining of orders from other countries in peace time, then it is going to rely—

660. *Mr. Spender:* I am not speaking about war time.

Dr. Addison: I am not; I am talking about peace time.

661. *Mr. Spender:* The Inquiry, as I understand it, is not so much concerned with war time. I think we should most of us agree with all that you say about control in war time; it is only how to get the best reserves and the best machinery for expansion at the least cost in time of peace.

Dr. Addison: I think it is undeniable that the reliance upon firms who manufacture or seek to manufacture for overseas markets—the suggestion that that so spreads your overhead that it is better for the state—that is your inquiry?

662. *Mr. Spender:* Yes; in time of peace.

Dr. Addison: Yes. I suggest that the evidence shows that it is not so; that the firms, quite necessarily, in undertaking that type of manufacture, have to have very large overhead charges, and, as they themselves urged to me in this paper here quoted, they have to support in some cases a costly, world-wide selling organisation. So they have, and the expense of that world-wide selling organisation with all that goes with it comes in the long run on the price of the supplies. I suggest to you, Mr. Spender, that the suggestion that the state is getting it cheaper because of that is not in accordance with the facts. It is not getting it cheaper; it is paying more.

663. *Mr. Spender:* That must be more or less a speculation, must it not?

Dr. Addison: Well, of course; and a very big speculation. They do not know whether they are going to get orders from Bolivia or not.

664. *Mr. Spender:* I am not defending the system.

Dr. Addison: I know you are not. I am not expressing an opinion about it; I am only saying what it necessarily involves in cost.

665. *Mr. Spender:* It is not merely orders for munitions that these firms get?

Dr. Addison: No.

666. *Mr. Spender:* They are using their labour for a great many peace purposes which also spread the overhead charges?

Dr. Addison: That is true.

667. *Mr. Spender:* So it is not very easy.

Dr. Addison: But you cannot get away from the fact that that system necessarily involves, and, as firms quite properly claim—I think it is a fair claim—a very big extra expense to maintain that selling organisation. But if you take a thing like (3) in paragraph 5 (b) of Exhibit C, the unemployment of armour plates or armour rolling plant—expensive plant of that kind—it is a very prodigious addition, and must be, to their overhead charges. You are paying for it; you must pay for it, and it is not cheaper to do it that way.

668. *Mr. Spender:* You have been talking of your experience of 1914, when munitions were something which were static. Was not one of the difficulties in 1914-15 that the War was developing all sorts of new emergencies and new weapons, and you could not get the soldiers to decide upon what kind of munitions or guns they wanted? The argument went on all through the autumn and winter of 1914 and the spring of 1915 between shrapnel and high explosives, and when we speak of storing munitions and having reserves of them, does not that mean constantly storing all the time?

Dr. Addison: There is bound to be a certain amount of that, anyhow. I do not think that the

demands for new developments became so pressing in the sense to which you are referring until about the middle of 1915. The arrears of demands which gave rise to the trouble in the autumn and the winter of 1914 and the spring of 1915, which led to the establishment of the Ministry of Munitions, were the inability to obtain stock supplies which had been forecast before, which were not new in type, although in some cases with regard to shrapnel and high explosives the proportions between the two were different from anticipations, that is true, but, still, it was the same type of shell. The trouble at that time was the deficiency and the inability of the supply—what you might call the stock supplies. The new thing arose later, and I think there is no doubt that if there should be such a calamity as another war you may be perfectly certain that the form of demand will be different and that there will be lots of things which no one anticipates. You cannot help that, anyhow.

669. *Mr. Spender:* If you look at either the French or the German or the Russian results of 1915 they all tell the same story?

Dr. Addison: They do indeed.

670. *Mr. Spender:* All out of guns, munitions, rifles, etc.?

Dr. Addison: Yes; but that situation in Russia applied all the time. So far as France and Germany are concerned, it developed during 1915.

671. *Mr. Spender:* It was a little earlier, was it not?

I am speaking rather from memory; you have all the details in Lord Kitchener's "Life." I think December, 1914, was one of the critical months?

Dr. Addison: There was a controversy between the use of high explosives and shrapnel, which went on sporadically for a long time; but so far as this particular case is concerned—shrapnel shells, 18-pounders, or high explosives—these were the things which had been specified; they were not new things; and the point was whether this was the best method of supplying them or not.

672. *Mr. Spender:* There was a great controversy as to the safety of the various kinds of high explosives?

Dr. Addison: There was indeed, and it went on for a long time. We did not get over those difficulties until really well into 1916, but no one can be blamed for that. I am afraid that sort of thing is inseparable from anything which is new. It is neither for nor against private manufacture; it is just something new.

673. *Mr. Spender:* I am only suggesting there is no system which is watertight.

Dr. Addison: No. That is why I particularly attach so much importance to what I have stressed about design and invention, and all that. I think it is very necessary that you should have an alert central organisation capable of making use of what it can obtain outside.

674. *Mr. Spender:* How long do you think it would take, if it were decided to change over to state manufacture, to buy out or compensate the firms and make new arrangements?

Dr. Addison: It depends upon who handled it and how it was handled. I should have thought, speaking without detailed consideration in answer to your question, perhaps a year or so; perhaps a little longer, a couple of years, but not a long time.

675. *Chairman:* It is now time for us to adjourn and I understand you cannot come this afternoon?

Dr. Addison: I am sorry.

676. *Chairman:* Could you come again on Friday morning?

Dr. Addison: Yes.

677. *Chairman:* Because I think that some of my colleagues have questions to put to you.

Dr. Addison: If you please, Sir.

(Adjourned for a short time.)

[For continuation of Dr. Addison's examination, *vide infra*, p. 100.]

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Lord DAVIES OF LLANDINAN.

[Continued.]

On resumption:—

Lord DAVIES of Llandinan, representing the New Commonwealth Society, called and examined.

678. *Chairman:* Lord Davies, you have been good enough to come and offer to help us. You have prepared a statement which we have in print. You realise that it deals with some matters from one point of view, or perhaps several points of view, which are not directly material to our Inquiry, but at the same time they bear upon the questions which we have to consider, and I was wondering what would suit you best. If you would like to read your state-

ment that would be quite convenient and acceptable to us.

Lord Davies: In the first place, may I thank you, Sir, and the Commission for kindly allowing us to place this evidence before you. I represent the New Commonwealth Society, which is an international body, and this memorandum has received the approval of the executive committee of the international section and also the majority of the members of the British Committee of the Society.

(*The witness read the following statement.*)

Aims and objects of the New Commonwealth.

1. The New Commonwealth is an international society which endeavours, by means of research and education, to influence public opinion in Great Britain and other countries to secure the establishment of the reign of law in international relationships. Its basic principles are:—

(i) That a durable peace can only be founded upon the concept of justice.

(ii) That the reign of law in international relationships will never be realised until,

(a) a peaceful procedure has been evolved to revise treaties and to adapt the public law to the changing needs of the international community,

(b) adequate sanctions—financial, economic and military—have been provided to enable the international authority—the League—to vindicate the supremacy of the public law.

From these principles we deduce the necessity for the establishment of two institutions as part of the permanent machinery of the League;

(i) An equity tribunal empowered to settle all disputes, including those arising out of the revision of treaties, which defy settlement through the existing procedure of negotiation and conciliation—the Assembly and Council of the League—or of judicial processes—the Permanent Court of International Justice, and

(ii) an international police force to maintain order and to uphold the decisions of the authority.

By insisting upon the necessity for the establishment of these complementary institutions—an equity tribunal and police force—the Society endeavours to harmonise the dynamic principles of peaceful change with the static principle of security in international relationships.

An International Police Force.

2. The idea of an international police force is not new and throughout the centuries it can be traced back to the days of the City States of Ancient Greece. From time to time, distinguished statesmen and publicists—Sully, Saint-Pierre, Rousseau, William Penn, Kant, Castlereagh and Theodore Roosevelt, to mention only a few—have proposed the pooling of national military resources for the purpose of establishing an international sanction. During the last twenty-five years, discoveries and inventions, and the application of science to the art of war, have produced a number of super weapons, for instance, submarines, tanks, poison gas and aeroplanes, thus increasing immeasurably the potential power of destruction of every national war establishment in comparison with the pre-war era. We propose that by applying the principle of differentiation of weapons, it will be possible to transfer to the custody of the international authority, these super weapons, thus conferring upon it a superiority of force expressed in armaments and equipment rather than in huge armies and mass formations. Under this arrangement, the national military establishments would still retain such forces and pre-war weapons as are deemed necessary for policing their

respective countries and dependencies abroad, and as the first line of defence, for the protection of their frontiers against an aggressor. In the event of an attack, these forces would be immediately reinforced by the international police force just as the constabulary are reinforced by the forces of the Crown in the event of riots and civil disorder. The strategical location and distribution of the international police force would depend upon the number and geographical position of states members of the authority. Its main preoccupation would be to protect them against acts of aggression by non-member states. Participation in this collective system on terms of equality would be open to the latter whenever they desired to join the ranks of the authority. The international police force would therefore be a highly specialised and centralised force manned by a relatively small personnel of fully trained experts and under the direct control of the authority. This brief description is intended as an introduction to the following suggestions dealing with the supply of armaments and munitions for the maintenance of such a force which, if they were adopted, would render nationalisation unnecessary and enable the existing sources of supply to be utilised for the sole purpose, not of making war, but of suppressing it.

Disarmament.

3. In its advocacy of these objectives, the Society is not directly concerned with the policy of negative disarmament. Our aim is to concentrate public opinion upon the necessity for “the enforcement by common action of international obligations.” (Article VIII of the Covenant.) We believe that when an effective system of collective security has been established—the reign of law—disarmament will automatically follow, because no longer will any nation co-operating with others in the establishment of this system have any inducement or motive to maintain huge and costly armaments of its own. Thereafter the defence of each will be merged in the defence of all, whilst the experience of every civilised community demonstrates that “centralised force tends to eliminate all force, including itself.”

Purpose of armaments.

4. It follows that the Society is chiefly concerned, not with the methods and conditions of armament manufacture, but with the purpose for which armaments are required and their ultimate destination. We maintain that, wielded by an international authority in the exercise of the police function, they will become the custodians of peace and the guardians of justice. On the other hand, under the exclusive control of sovereign national states they will continue to be used as the instruments of international duelling, thus perpetuating the ancient practice of trial by battle. The New Commonwealth asserts that the only right or moral use of armaments is the policing function.

Private manufacture.

5. We regard the private manufacture of armaments under the existing international system as pernicious, for two reasons:

(a) because in the present state of international anarchy the immediate interests of

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[Continued.]

armament firms are served by fomenting and stimulating international rivalries and jealousies, which ultimately lead to war. We need not elaborate this point because it has been exhaustively dealt with in the evidence already submitted to the Commission;

(b) because the motive of private gain or profit is an inducement to armament firms to supply weapons to other nations, which in the event of war may be used against the forces of their own country.

Therefore, under existing conditions, the private manufacture of and trade in armaments, is an adjunct of competitive national war establishments, and of the duelling system. If this anarchic system is to be allowed to continue, we believe that its effects will be aggravated by the private manufacture of armaments. Therefore, so long as these conditions exist, we would urge the nationalisation of all armament manufacture and trading, though we are not convinced that this change will in itself result in any appreciable limitation of armaments, or that it will entirely abolish the abuses to which we have alluded above. In short, we regard nationalisation merely as a palliative measure, which may help to diminish the incidence of war.

Competitive war establishments—the root cause of war.

6. Moreover, even though armament production is nationalised, the elimination of private profit will not prevent war being regarded as an instrument of policy. Further, there will be no guarantee that surplus stocks will not be sold by governments to other nations,* or that the small states will not become the vassals of the Great Powers upon whom they will be dependent for supplies of war material. Therefore, in our opinion, the root of the evil lies, not in the method of manufacture or trading, but in the existing system of competitive national war establishments. Until this is replaced by a collective system, mankind will always live under the menace of war which, in the twentieth century, means the threat of complete annihilation and the destruction of civilisation, at any rate in Europe.

Co-operative armament versus competitive armaments.

7. We would therefore venture to submit that the urgent need of Europe, and specially of Great Britain—owing to its vulnerability to air attack—is the establishment of a collective system of security which, in its development and organisation, means the creation of an international police force under the control and direction of a neutral authority—the League of Nations.

Further, we believe that if such a development can be achieved, the existing methods of manufacture of armaments, both public and private, could be fitted into the new system with the minimum of dislocation and expenditure. The effect would be to limit the demand for armaments to one customer—the League. Under such an arrangement government factories and armament firms would be precluded from supplying their munitions to any country or government other than the authority controlling the international police force, subject to such conditions and modifications as might be agreed to

between the states members of the authority, for the supply of weapons and ammunition required for policing purposes in their own territories at home and overseas. This would mean substituting co-operative armament for the existing system of competitive national armaments, and it would obviate the two objections to private manufacture and trading mentioned in paragraph 5. It would remove any incentive on the part of the armament firms to stir up rivalry and foment trouble because they would be bound by their contract with the international authority to refrain from supplying weapons to anyone else. Moreover they would no longer be under the stigma of supplying armaments to other nations which could be employed to slaughter their fellow-countrymen.

The only conceivable exception would be an act of aggression committed by a state member against one of its neighbours which would compel the authority to employ its police force in defence of the state which was being attacked and to bring hostilities to an end. This would be analogous to the case of individuals in every civilised community who contribute to the cost and equipment of a police force which may be used to arrest or restrain them should they be guilty of acts of violence against their fellow citizens, or commit a breach of the law.

Sources of armament supply—no moral considerations involved.

8. Assuming that the states members of the authority are prepared to recognise that the exclusive purpose of armaments is the policing function, and that they are willing to constitute a joint force under the control of the authority towards the maintenance of which they will jointly and severally contribute, then it follows that the armaments and equipment of such a force must be supplied from some source or another. It is clear that no moral considerations are involved so long as these armaments are employed for one purpose only, namely, international policing, and their ultimate destination is the international authority. It therefore seems to us immaterial from what source or sources they may be derived. Consequently it becomes a question of expediency as to whether they are produced by

- (i) international manufacturing establishments under the direct control and supervision of the authority,
- (ii) national establishments under the control of individual states members,
- (iii) private armament firms situated within the territories of the co-operating states members.

Should international authority establish its own munition factories?

9. It is clear that the weapons transferred to the international police force will require to be replaced as the original stock handed over by states members of the international authority becomes obsolete. In certain eventualities it may even be necessary to increase the supply if, for instance, the states which remain outside the authority decided to embark upon a new competition in armaments in defiance of the reign of law and in order to impose their individual will upon the federal authority. It is anticipated, however, that if a sufficient number of states combine at the outset in establishing the authority it may be able to reduce the contents of its arsenals, and thus obtain a considerable measure of disarmament followed by a still more comprehensive reduction when the non-member states decide to co-operate in the new system.

But, however great these reductions, there will always be the need for the replacement of old and useless weapons and for the replenishment of the stocks of ammunition. The authority may occasionally introduce a new weapon and it may improve

* Evidence that this practice exists at present is contained in a letter from Captain John Ball, Director of the Soley Armament Co., Ltd., to the American Armament Co. in which he claims to be a contractor to the War Office and "really the sole selling channel for small arms, etc., which belong to the British War Office." The letter continues "The stocks we control are of such magnitude" (valued at approximately £6 millions) "that the sale of a big block of them could alter the political balance of power of the smaller states." (Minutes of Evidence of Commission Investigating Munitions Industry in the United States, Part 3, page 672, exhibit 256.)

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upon its original types. It may be forced to do so by the action of non-member states, and in these circumstances it would be compelled to undertake a comprehensive programme for the improvement and modernising of its armaments. Consequently, provision would have to be made in the organisation of the international police to meet this contingency. But unless it is faced by competition from outside, the tendency will be towards stabilisation, followed by reduction, and the policy of replacement will be limited to those weapons which are fit only for the scrap-heap. As a result the "expectation of life" of each species will be prolonged.

Nevertheless, the problem of manufacture and supply both of weapons and ammunition, will still remain. The international authority might undertake the task of repairs, but without incurring enormous costs it could not become directly responsible for the manufacture of renewals. Repairing workshops might be established at the unit, continental and headquarters bases, but the production of a new ironclad, tank or gun would be clearly outside the range of its activities, and might lead to endless complications and unnecessary expenditure.

The authority and its states-members.

10. The authority bears no comparison with the individual sovereign state. It does not possess vast territories upon which to erect its factories for the production of battleships, submarines, tanks, artillery, poison gas, etc., nor can it command the services of a highly industrialised population for the supply of its requirements. It must perforce fall back upon the resources of its individual states-members as the means of replenishment. If the latter have handed over their super weapons, they can be trusted to produce the necessary replacements and the stocks of ammunition. Such an arrangement would obviate the enormous expenditure entailed by the erection of new factories especially in neutralised localities or small states where the cost of manufacture would probably be excessive, whilst the confidence displayed by the authority in the loyalty of its states-members would give them a direct stimulus in maintaining the armament and equipment of the international police.

Spreading the risks.

11. Moreover, the concentration of the entire production of weapons and ammunition in a few centres and huge factories under the control of the authority might constitute a serious menace to its security. To any recalcitrant state-member or hostile non-member, these centres would become the decisive points. If they could be placed *hors de combat*, the superiority of the international police would be seriously endangered, if not destroyed. Acts of incendiary or sabotage directed against these munition factories might deprive the authority at one blow of its vital supplies.

On the other hand, if it is not dependent upon any one source for its replenishments, it may draw upon the resources of all its states-members. If any Great Power assumed the role of the aggressor or endeavoured to paralyse the authority by cutting off its supplies, the latter would be able to fall back upon the other powers to make good the deficiency. Thus the policy of spreading the risks would be infinitely less dangerous than one which aimed at concentration under the authority. Consequently it is not proposed that the manufacture of arms and equipment for the international police should be undertaken by the authority.

Aircraft factories an exception.

12. To this general rule, it is suggested there may be an exception, and it relates to the unique position of aircraft as a policing agency and the necessity of improving this new arm of the service in order to increase its potency and efficiency.

Consequently, it may be found desirable to establish several aircraft factories under the control and direction of the authority and specially designed for the construction of fighting machines and bombers. These factories would concentrate their activities in developing the military type of aircraft, which might tend to become more and more distinct from the commercial air vehicle.

In the sphere of aviation new types follow one another in rapid succession. These factories would, therefore, become centres of research and experiment contributing to the advance of aeronautical science.

It is held in some quarters that the fighting 'plane will become the decisive weapon of the future, and that superiority in this arm will be the dominating factor in any struggle. Whether this view can be substantiated or not, few people will deny the importance of the military aeroplane and the necessity of maintaining its superiority in speed and "performance" over the commercial 'plane. The authority should not be entirely or exclusively dependent upon the efforts of national aviation factories of states-members or of private firms in improving the existing types and models. The fact that it would possess a monopoly of the fighting 'planes should not prevent it from exploiting this advantage by increasing the speed, range and efficiency of these machines.

The authority need not depend solely upon its factories for even the bulk of its requirements. We have seen that this would be a mistaken policy. But in a matter of such vital importance, it could not afford to rely entirely upon the initiative and enterprise of national governments or private firms whilst the dual source of supply could not fail to be an advantage.

Rationing of orders.

13. Let it be assumed, however, that with this exception, the authority relies upon its states-members for the provision of weapons and ammunition, that it rejects the alternative of direct manufacture and purchases its requirements from the existing sources of supply. This system, however, has its drawbacks, against which safeguards should be provided in the treaty. The general considerations bearing on this point are as follows.

Firstly, the armament orders should be rationed out as far as is practicable amongst all the states-members. This proposal, of course, does not mean that every state-member will be allotted its quota irrespective of other factors, such as costs, distance from the police bases, capacity of production and other circumstances, which should be taken into account in the distribution of the orders. It is clear that in most cases the requirements could only be supplied by those nations which have attained a high standard of industrial efficiency. Each state-member which can demonstrate its ability of ministering to the needs of the authority should, however, be entitled to its share of the orders.

No monopolies.

14. Secondly, the orders should be distributed in such a way that no state-member or group should be able to secure a monopoly in the manufacture or production of any weapon or species of ammunition required by the international authority. At least, all the Great Powers should be included in the allocation of orders for vital necessities. It is clearly essential that no national government should be placed in a position which would enable it to paralyse the activities of the international police by holding up their supplies, or to exert pressure on the authority by even threatening to do so. If each of the Great Powers participates in the manufacture, limited in extent and defined in the treaty, of these supplies, the security of the international police will be assured and the danger of a monopoly will be removed.

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The production of chemical materials may be cited as an instance. At the conclusion of the War there were 25 kinds of poison gas, and since then several new varieties have been added to the list. It is essential that all these chemical compounds should be manufactured in factories situated in the territories of each of the Great Powers, thus ensuring to the international authority adequate and alternative sources of supply. Before the War Germany possessed a practical monopoly of these materials owing to the fact that her industrialists had captured the trade in chemicals, and had organised the industry on a monopoly basis. As a result she succumbed to the temptation to use the products of her dye and allied industries for war purposes. The arrangement described above will remove this temptation in the future. It will rest upon the unassailable basis of being directed against no state in particular, but against any nation which violates its treaty pledges.

The Bareme formula.

15. Subject to the above considerations, it is suggested that the orders for the supply of armaments and munitions should be allocated to states-members on the basis of the Bareme formula, which governs the contributions now paid by states-members towards the cost and maintenance of the League. This formula expresses the principle of equality of sacrifice, or ability to pay in terms of annual contributions to the international authority. In other words, it represents the premiums to be paid on the insurable assets of each contributory state. Consequently the same system might fairly be applied in assessing the contributions of states-members towards the maintenance and cost of the international police force. It follows that the allocation of orders for armaments and equipment should be distributed on the same basis, so that states-members who paid the largest contributions would receive their share of the orders for supplies.

Nationalisation of armaments.

16. Under the arrangements outlined above, it does not appear that any advantages would be gained through the nationalisation of the armament industries functioning within the jurisdiction of states-members of the authority. The activities of both state factories and private firms would be restricted to supplying weapons which would be used exclusively for policing purposes, whether by national governments within their own territories, or by the authority for the maintenance of international law and order. State factories would be primarily concerned with the equipment of the forces under their control, whilst the bulk of super weapons would be produced by private firms, as they are to-day, to supply the requirements of the international police force.

The International authority and armament firms.

17. Private firms and factories authorised to manufacture weapons and ammunition on behalf of the international authority should be scheduled in the treaty and licences for this purpose might be granted by the authority and endorsed by the respective national governments. No other firms would be added to the list without the sanction of the authority. Moreover, they would be precluded from selling any weapons to non-member states. The authority would thus constitute their sole customer inasmuch as states-members would solemnly have renounced the right to employ these weapons. They would have voluntarily handed them over to the authority, with the exception of a limited number belonging to certain types required for internal policing, and which should be enumerated in the treaty.

Direct contact with the authority.

18. The further point arises as to whether the authority should deal direct with the munition firms

or whether the orders should be transmitted through the national governments. Probably the former method would be the simpler plan and would avoid possible complications, red-tape, and delay, once the allocations for replacement had been agreed to by the states-members. Such an arrangement would tend to strengthen the relationships between the armament producers and the international authority. The former would be less likely to support their national governments in any chauvinistic policy, preferring the certainty of long-term contracts to the risk of losing their trade connection with the authority. They would realise that in the long run their interests would best be served by assisting the international authority to maintain peace, rather than in bolstering up a precarious system which is bound, sooner or later, to lead to war. They may also realise that in the next war, armament and munition factories will probably be reduced to ruins within a few hours of the outbreak of hostilities.

In the past it has been the practice of a number of national governments to purchase their warlike equipment direct from armament firms in foreign countries. Consequently the proposal that the authority should follow the same procedure does not involve any new principle in the relationships between sovereign states and the armament firms functioning within their jurisdiction.

The future of armament firms.

19. Taking the short view, the immediate effects of the scheme will probably be injurious to the financial interests of the armament firms. The authority will have become their sole customer, and they will no longer be able to exploit national rivalries. Their orders for renewals may have dwindled to modest proportions, and their output will be regulated to meet the needs of the authority. Their trade will be restricted within the limits prescribed in the licences granted under the treaty.

Under these conditions, it is clear that comparatively few firms would be prepared to tender for new constructional work. A business whose expansion had been permanently arrested, and whose volume of trade tended to diminish rather than increase might become incapable of executing even the slender requirements of the authority, unless special arrangements could be entered into, safeguarding the interests of both parties. For instance, the authority might undertake to pay an annual subsidy, or rent, to the selected firms in each country, in return for an undertaking on their part to maintain a specified quantity of machinery and plant, to be placed at the disposal of the authority in case of emergency. The latter might also agree to guarantee a minimum payment to each firm over a period of years, irrespective of the quantities actually purchased. This payment would be merged in the price of the weapons, but would in any case be paid even though the total orders during the period were less than the amount of the annual subsidies. Such an arrangement might be regarded as a guarantee, which would enable the firms to maintain their specialised plant and the services of their skilled mechanics for the exclusive use of the authority. It would necessarily be restricted within certain limits, and would be applied impartially to all the firms scheduled in the treaty.

Compensation.

20. Regarded from a purely business standpoint, it might be a profitable transaction for all the nations concerned to extinguish the opposition of all the armament firms, by paying them a measure of compensation for the loss of business which the creation of an international police would involve. Hitherto they have flourished as part and parcel of the international system. Their enterprises have been fostered by every government, and they have ministered, often unscrupulously, to the needs of every nation. Their services cannot, however, be

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entirely dispensed with, and henceforth they can be employed as accessories in the cause of justice and peace.

Never has a more favourable opportunity presented itself of coming to terms with the war-traders. The World War imposed an intolerable strain upon their resources. They were forced to expand their activities in all directions at an unprecedented rate, but on the morrow of the Armistice, they were left high and dry to extricate themselves as best they could from the results of over production and the lavish outlay of capital on works which were no longer required. The universal financial stringency imposed upon every nation not only undermined the prosperity, but even threatened the existence of the armament firms. They have been forced to allow their war departments to lie fallow, and to concentrate upon the manufacture of peace products which have also been adversely affected by the post-war depression in industry. They are passing through a period of reconstruction which inevitably follows after every great war. On the one hand, they may reach a permanent settlement with the authority under which, after providing for its requirements, they will devote their energies exclusively to the arts of peace. On the other, they may tide over the armament depression by developing their peace departments and keeping alive their war factories with small orders which will gradually swell in volume as the national exchequers recuperate and the reaction against war evaporates.

Alternative policies.

21. Here are two alternative policies, and the armament firms may be permanently enlisted on the side either of peace or war. In their present state of mind and under existing conditions they might be willing to treat with the authority, and a mutually advantageous agreement might be reached which will remove this sinister and potent influence from the realm of international relationships. If, however, a settlement is delayed, not only will all schemes of disarmament be frustrated but nations will be engaged in a new and disastrous competition in order to bring grist to the armament mill. The present opportunity should be seized by the states-members of the League to effect a permanent settlement with these powerful agencies. Thus the incentive to stir up international strife, to produce new engines of destruction and to increase the output of munitions all over the world will be removed, at any rate in Europe. Measured in terms of money, no price can be regarded as too high to bring about such a settlement, which can only be achieved through the instrumentality of the authority as an integral part of its scheme for the establishment of an international force.

The air.

22. Whilst the principles and proposals advocated by the New Commonwealth ultimately lead to the organisation of an international police force, armed with all the super weapons which science has introduced during the last quarter of a century, it is realised that such a comprehensive programme can probably only be achieved by stages. Experience may also prove that if military and civil aviation are internationalised, it will not be necessary to hand over other super weapons to the international police. Consequently the immediate objective of the Society is to concentrate upon the problem of the air, and to advocate the establishment of an international air police by the European states-members of the League. The recent air defence pact proposals at least enunciate the principle of international air policing. The idea underlying these proposals is mutual protection, which can only be achieved through a collective system in which the defence of each is merged in the defence of all. The inevitable and logical result of such a policy is an European air police force controlled by a neutral or federal authority—the League.

In order to secure the greatest economy, the best strategical distribution, the highest mobility and the maximum efficiency of such a force, it is essential that it should be directed and controlled by a central authority. It is generally agreed that the menace from the air has now become so overwhelming that the next war will mean mutual annihilation on such a vast scale as to destroy civilisation, at any rate in Europe.

Therefore no measure short of detaching the squadrons of the air from the control of the national governments and handing them over to the custody of the League will suffice to remove a danger of such potential magnitude as has never before threatened the peoples of Europe.

The conquest of the air has introduced a new science and a new industry. It has also brought into existence a new military service and weapon which are likely to become the decisive factors in any future war, and may render other weapons more or less obsolete. Lacking the traditions of the other military services, with its appeal to youth in all countries, besides its mobility and relative cheapness, it will be easier to convert aviation into an international policing agency than any other instrument of coercion.

Moreover, the deterrent effect exercised by an international air police will be infinitely greater than any which can be produced by a combination of the older services. Consequently the proposals adumbrated above for the supply of armaments and munitions to an international police force, comprising land, sea and air services apply especially to the establishment of an European air police. Although the aircraft industry is still in its infancy, it is growing by leaps and bounds, and therefore no time should be lost in moulding its development on international lines, so that it may serve the cause of civilisation, instead of destroying it.

We presume that aircraft manufacturers are patriotic persons who, if they are convinced that the safety of their country and, incidentally of their own factories can best be served through the creation of an international air police force and the internationalisation of civil aviation, they would agree to co-operate amongst themselves and with their respective governments in working out a practical scheme for the supply of aircraft and equipment for such a force.

Therefore we would venture to suggest that a committee of aircraft manufacturers should be asked to study this problem and to submit a plan embodying concrete proposals for supplying the requirements of an European air police. We submit that the first step is to secure the co-operation of aviation experts and aircraft manufacturers in every European country, in framing practical measures for dealing with this urgent matter.

Conclusions.

23. To sum up, the New Commonwealth submits the following conclusions:

(i) That the embodiment of the root causes of war is to be found in the system of competitive war establishments controlled by the governments of sovereign states.

(ii) That the question of nationalisation, as opposed to the private manufacture of armaments cannot be satisfactorily settled until the purpose and function of armaments has been decided and agreed upon.

(iii) That the only right, or moral purpose of armaments, is the exercise of the policing function.

(iv) That the recognition of this principle involves the establishment of an international police force under the control of a neutral international authority—the League of Nations.

(v) That under such a system, provided state factories and private armament firms are precluded from supplying armaments to non-member

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states, no moral considerations are involved in the method of manufacture and supply and that consequently the question of determining the source, or sources of supply becomes a matter of expediency.

(vi) That if no such international collective system is evolved and war is still to be regarded as an instrument of policy, private firms engaged in armament manufacture should be nationalised in order to prevent, as far as possible, the abuses of the present system.

(vii) That assuming an international police force is established under the control of an international authority, its armament requirements should be secured from existing sources of supply, and that the authority should not, except possibly in the case of aircraft, become directly responsible for the manufacture of its armaments.

(viii) That the authority should be authorised to enter into contracts with state factories and private firms for the armaments and munitions it requires.

(ix) That as a first step, it is imperative to internationalise the air and to create an international air police in Europe.

(x) That aircraft manufacturers should be invited to co-operate in drafting a plan for supplying the requirements of an international air police force.

679. *Chairman*: Thank you, Lord Davies. We all realise that you have presented a very clear and full case in support of this proposition for the establishment of an international police force. If we do not ask you many, or indeed any, questions upon your proposal you realise that it is because it is not really within our province or within the terms under which we were appointed either to express approval of any particular scheme or to criticise any particular scheme, but to confine ourselves to endeavouring to form conclusions which bear upon the particular terms of our reference. Therefore, I do not propose to ask you any more than a very few questions, in order to make clear to myself exactly what your proposition involves. Assuming the establishment of this international police force, in your view and that of your Association it becomes wholly immaterial to deal with the question of nationalisation as opposed to private manufacture?

Lord Davies: Yes, Sir. We think it is the question of the purpose for which these armaments are required, and not the method of their manufacture, which is the essential point. If they are to be used exclusively for exercising the policing function then we do not think it matters whether they are manufactured by private firms or by state factories.

680. *Chairman*: That is plain. In paragraph 6, where you are talking about nationalisation, you deal with the possibility of states supplying their surplus stocks. Assuming an international agreement to nationalise the manufacture of armaments, have you considered the possibility of states not only supplying their surplus stocks to other states but actually starting as traders themselves? Assuming the private manufacture of arms to be forbidden or stopped, then the manufacture must rest with the states themselves. Have you or your Association considered the possibility of states starting as traders themselves? That is the point that has been made.

Lord Davies: Yes, Sir. I refer to it in the course of, I am afraid, the very long statement which I have read, where I think I describe it in this way, that possibly the smaller states would become vassals of the great powers upon whom they were dependent for their supplies of war material.

681. *Chairman*: It has been pointed out to us that really the nationalisation of the manufacture of armaments might from some points of view be a

greater evil than allowing the existence of private manufacture.

Lord Davies: I do not think I could go so far as to say that. All we try to point out is that it really does not get at the root of the whole trouble; that the root of the trouble, after all, is the purpose for which these armaments are going to be used in the long run, and what their ultimate destination is to be. The mere nationalisation of their production does not mean necessarily that war is no longer to be regarded as an instrument of policy. These smaller countries who are now dependent for their supplies upon the big armament firms would still be dependent on certain governments who would supply them with the warlike material which they required.

682. *Chairman*: In paragraph 20, where you are dealing with the private manufacturers from a business point of view, you say "Their services"—that is, the services of private armament firms—"cannot, however, be entirely dispensed with, and henceforth they can be employed as accessories in the cause of justice and peace". Does that mean, assuming the establishment of the international police force?

Lord Davies: Precisely, Sir. I do not think we would ever suggest that they were accessories of either justice or peace unless they were part and parcel of a policing system.

683. *Chairman*: My last question is this, and it deals with the only part of your statement which very materially concerns us: You realise, do you not, that the main object for which we were appointed was "To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (a) by the United Kingdom alone, (b) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a state monopoly of such manufacture and trade." You know that?

Lord Davies: Yes.

684. *Chairman*: The only piece of advice that you give us that I find is in paragraph 23, clause (ii). There you say that "the question of nationalisation, as opposed to the private manufacture of armaments"—which is the main question we have to consider—"cannot be satisfactorily settled until the purpose and function of armaments has been decided and agreed upon." That means that we had better adjourn *sine die*, does it not?

Lord Davies: Not necessarily, Sir. One cannot help feeling that the question of armaments has now become a very urgent one. People want to know what these armaments are to be used for. They ask, having seen the working of the League of Nations, having become signatories to the Kellogg Pact, having signed the Treaty of Locarno, and other instruments which purport, at any rate, to set up a system of public law in Europe, what are these armaments for, unless they are to be used exclusively and for no other purpose but policing. If the governments were sincere, and carried out the logical conclusion of the commitments to which they have already set their hands, they would adopt a system of this kind. Whether the system would be merely to contribute contingents towards an international police force or to put the force itself under the direct control of the authority is, of course, a question of degree, but the principle involved is perfectly clear, and we maintain, rightly or wrongly, that if such a system can be brought into operation—the French Government have already suggested certain concrete proposals—then it would entirely clear up this question of whether all armaments should be nationalised or not, because that question would have been already solved and it would not make any difference—in fact it would prevent an enormous amount of uneconomic expenditure—if the present system were fitted into an international policing system, and so far as it was

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humanly possible to do so you would safeguard armaments from being used for any other purpose than to maintain the public law.

685. *Dame Rachel Crowdy*: At the present time we seem to be quite unable to get an adequate collective system. If we get no international convention—by which I mean an international convention ratified and applied—and if we get no police force of the kind that you suggest, do you then think it worth while to change from private manufacture to nationalisation? I cannot quite make out from your memorandum. I see in your conclusions under paragraph (vi) you say, "That if no such international collective system is evolved and war is still to be regarded as an instrument of policy, private firms engaged in armament manufacture should be nationalised in order to prevent, as far as possible, the abuses of the present system." Then, under paragraph 5 you say, "In short, we regard nationalisation merely as a palliative measure, which may help to diminish the incidence of war." If it can possibly do that it may help to diminish the incidence of war. Is it worth while going through all the blood and sweat required to change from private manufacture to nationalisation? I would like your opinion on that, because I know that you have followed this armaments question closely and are particularly interested in it.

Lord Davies: My answer to that would be that anything which tends to diminish the incidence of war is worth doing—because the next war is going to finish everything—and many people assert that under the existing anarchic conditions the nationalisation of armaments would probably help. That is as far as we can say. That is our case, rightly or wrongly. We think it will help, and anything which helps ought to be carried out. If the governments decide to go on with competitive armaments, if there is no question of pooling armaments as a sanction for international law, then we think the sooner those armaments are nationalised the better.

686. *Dame Rachel Crowdy*: The odds for good are slightly weighted in favour of nationalisation.

Lord Davies: Yes; in order to get rid of all this stirring up of trouble and arousing of international jealousy and discord which undoubtedly is going on all over the world at the present time.

687. *Chairman*: That was a very important question that *Dame Rachel* asked you. When you were answering, did you mean general nationalisation of the manufacture of arms by all the Great Powers or by one single power? Would it affect the chances of war if one single power were to nationalise the manufacture of arms, do you think?

Lord Davies: I think it would be vastly preferable if international agreement could be reached so that all the nations would do the same and each nation would undertake to nationalise the armament firms in its own country.

688. *Chairman*: One realises, of course, the moral influence of a single nation nationalising, but from the practical point of view of increasing or diminishing the chances of war, do you think that nationalisation by one nation would have any material effect?

Lord Davies: I think it would certainly help in that direction.

689. *Chairman*: By example?

Lord Davies: Quite.

Dame Rachel Crowdy: Might I say, Mr. Chairman, that I meant unilateral nationalisation by my question.

690. *Sir Kenneth Lee*: Could you tell us how many members you have in your Society?

Lord Davies: We are an international society. We have somewhere about 1,500 members scattered all over the world in about 30 different countries.

691. *Sir Kenneth Lee*: How many non-British members are there?

Lord Davies: I think about one-third.

692. *Sir Kenneth Lee*: About 500 non-British?

Lord Davies: Yes, roughly. I have not the figures here.

693. *Sir Kenneth Lee*: I was just wondering, because it is important to know what international influence there is behind it.

Lord Davies: We are a very young society; we have only been in existence for about two years. 694. *Mr. Spender*: You speak of the new and disastrous competition in order to bring grist to the armaments mill. You do not mean, do you, that armament firms foment quarrels in order to bring grist to the armaments mill?

Lord Davies: That is, perhaps, an overstatement.

695. *Mr. Spender*: At least the two things go hand in hand. The armaments mill would not go round unless there was a tendency among the nations to competition in armaments. You speak in places about an authority and it would seem that the authority you had in mind was only an European authority, for the people in Europe. The thought occurs to one that, supposing the League of Nations were the authority and were armed in that way by the international police, there would be very important nations outside—the United States of America, Japan and Germany. So you might have one group of states against another group of states.

Lord Davies: Our view is that the first step should be to put the European house in order, because the menace is so much greater in Europe, where all these nations are within a few hundred miles of each other and can destroy each other perhaps in a few days or even in a few hours. Therefore, as the immediate danger is in Europe the first thing is for the European nations to get together and possibly form a group, even inside the existing League.

696. *Mr. Spender*: Do you not think that the present position in the Far East might be a very important element in determining the policy in Europe?

Lord Davies: Yes, that is perfectly true; at the same time the immediate and pressing danger, as we can see it, is in Europe itself; and once Europe has put its own house in order it will be in a much better position to negotiate, for instance, with the United States of America and to say, "We have done everything that we can to arrange matters between ourselves; now will you not come along, America, and give us your blessing?" The Americans have always been saying that Europe was a hopeless proposition, that the nations of Europe were always squabbling among themselves and that until they were willing to take drastic measures to bring that state of affairs to an end, America did not want to have anything to do with Europe. We also feel, as I have already said, that the danger spot, the great menace of mutual annihilation at the moment is in Europe. We cannot be bombed by Japan, neither can we bomb Japan; it is a question of distance, the radius of bombing attack. Necessity alone, whether we like it or not, compels the nations of Europe in their own interests, in the interests of self-preservation, to enter into some federal bond of this kind and to constitute at least those two essential institutions—an institution which can change the public law and adapt it to meet the new necessities and new changes which have arisen and the pooling of their mutual resources, in order to see that the public law is respected and can be enforced.

697. *Mr. Spender*: You might have one very powerful nation outside, and if you were talking to an American he might take the view that you wanted that international authority in order to keep that one nation outside in order.

Lord Davies: Would it not depend upon whether you had a system whereby any nation which entered the circle was able to demand that this quarrel or dispute, or whatever grievance it had, should be placed before some impartial tribunal for settlement. That is a new instrument which has never been tried before, and once you set up that system, it appears to us that the moral authority which would accrue to it would differentiate it

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entirely from, and it could not be compared with, any of the older alliances of the past, because this is a new system which has never been put into operation before.

Mr. Spender: I quite agree it would have to be done by agreement covering the whole ground.

698. *Dame Rachel Crowdy:* I want to ask only one very short question, carrying on with what Sir Kenneth and Mr. Spender have said. *Apropos* the membership of your organisation, have you any members who are non-European?

Lord Davies: Oh, yes, I think we have some. 699. *Dame Rachel Crowdy:* And do they feel, as you do, that the policy might become an European policy, or that the collective states might be European to begin with? Do the Japanese feel that?

Lord Davies: I could not say. We have one or two members from Japan, but obviously the membership is scattered all over the world and it is very difficult to know what the individual members think in any particular country.

700. *Professor Gutteridge:* Have you looked into the question of the British Empire?

Lord Davies: In what way, Sir?

701. *Professor Gutteridge:* Are you going to treat all the different parts of the British Empire as separate nations for your purpose? Supposing the Australians said they would come in, and the Canadians said they would not, would not that create a rather difficult situation?

Lord Davies: No, I do not see why it should. That is what happened in the case of the Treaty of Locarno; we have agreed to certain commitments and so on.

702. *Professor Gutteridge:* I do not think you quite grasp my meaning. What I had in mind was this: Supposing there is a dispute between Australia and Canada and Australia is a member of this body and Canada is not, are you going to employ British members of the police force to coerce the Canadians or *vice versa*? Do you not think a very difficult situation might arise in that event?

Lord Davies: No, I do not think so.

703. *Professor Gutteridge:* I will not press that.

Lord Davies: I will try and answer it if I can. All the members of the British Empire are now members of the League of Nations; when they signed the Treaty of Versailles they were admitted to nationhood and they became equal with us in the organisation of a new body, the League, which was intended to suppress war. Therefore, I take it that although they might not be willing to enter into such a close relationship as the one that I have suggested here, the tribunal and the police force, because they happen to be some thousands of miles away, that should not deter this country, which is the heart of the Empire, from entering into such an arrangement with our neighbours if we think it is in our interests and the interests of the Empire that we should do so. We have already done so in the case of Locarno where the other members of the British Empire—probably quite rightly from their point of view—did not think fit to join us. There is no reason why we should not enter into this arrangement with our neighbours in Europe.

704. *Professor Gutteridge:* I do not think that is quite an analogous case. Take Ireland, suppose Ireland stood out of a scheme of this kind and the United Kingdom was involved in a dispute with Ireland.

Lord Davies: We have been involved in a dispute with Ireland and it has always seemed to me—although I may be quite wrong—that when the resources of the British Empire were exhausted and they could not find any means of settling this unfortunate dispute, as Ireland and ourselves were members of the League, it ought to have been taken to the League.

705. *Professor Gutteridge:* And, if necessary, you would use your international police force to enforce that decree?

Lord Davies: Yes, I would.

706. *Professor Gutteridge:* It is rather more than Locarno, because you have your police force and air force.

Lord Davies: I put in this proviso. I would not suggest to the League, for instance, that members of the British Empire should be the first to have to impose sanctions. For instance, in our own country, in the enforcement of the law, if there is a riot or civil disturbance in one part of the country we do not as a rule send regiments recruited from that particular district to suppress the riot or disturbance in that area. We send regiments recruited from some other part of the country. It seems to me that, very broadly, the same principle would apply to the functioning of the international force.

707. *Professor Gutteridge:* That leads me to the next question I want to ask you. At the present time the policing of the ocean would be very largely a British enterprise, would it not?

Lord Davies: No, I do not think it would.

708. *Professor Gutteridge:* You are going to have your international navy, I assume?

Lord Davies: Yes, I should like to have an international navy, because I believe that is the only way of keeping the navy going. I think that unless there is some kind of international navy, very soon the days of navies will be finished and gone. As instruments of national defence navies and armies have become more or less obsolete. I am reinforced in that opinion by the view expressed by Lord Fisher in 1921, when he said that we were spending £140,000,000 upon an obsolete navy.

709. *Professor Gutteridge:* As I understand your scheme you would have an international navy—a super navy—would you not?

Lord Davies: I should have navies to carry out the policing duties which are now carried out by certain forces I believe in our navy, the customs and all those sort of things which are internal policing measures. Yes, I should certainly have a naval force to carry out those duties.

710. *Professor Gutteridge:* You would want warships to protect your international police force while its members were being transported from one part to another. You would have to have your international navy to do that?

Lord Davies: You would have to have your international navy to police the ocean.

711. *Professor Gutteridge:* And to escort your troops in case of need?

Lord Davies: Yes.

712. *Professor Gutteridge:* Let us now go to something which is more important. You talk of super weapons?

Lord Davies: Yes.

713. *Professor Gutteridge:* Has your Society ever tried to define what those super weapons are?

Lord Davies: Very broadly. It is difficult to specify what should be a super weapon and what should not, but broadly speaking we take 1914 as a very rough division. The weapons that have been evolved have been either invented or developed since that date. There is the pre-war military establishment and the post-war military establishment. Those two things are entirely different, are they not?

714. *Professor Gutteridge:* Yes, except that you are going to get into difficulties if you take that date. That would mean that all the nations would be handling obsolete weapons if you took 1914 as your datum line. It looks as if you would only allow national armies to retain obsolete weapons; is that what you mean?

Lord Davies: The machine gun is an obsolete weapon. I do not think artillery is obsolete.

715. *Professor Gutteridge:* Machine guns have developed more than field guns since 1914.

Lord Davies: What we call super weapons are submarines, poison gas appliances which came into operation during the War, aeroplanes and tanks,

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[Continued.]

the super-battleships, the new naval developments and the larger calibre types of gun which were evolved during the War.

716. *Professor Gutteridge*: In other words, it is a very broad distinction?

Lord Davies: It is a broad distinction.

717. *Sir Philip Gibbs*: I suppose you would regard the happenings in the Saar at the beginning of this year as an object lesson in the use of an international police force?

Lord Davies: Yes, Sir Philip, up to a point. Of course, we realise that a permanent international police force under the direct control of an international authority is rather different from the police force which operated in the Saar. At the same time we recognise the fact that there was a force which consisted of contingents from a number of neutral nations who had no particular axe to grind in the Saar. It was a demonstration of what might be done if the nations which compose the League were prepared to adopt the same principle in dealing with international relationships on a broad line.

718. *Sir Philip Gibbs*: I imagine that the Saar is rather in your favour as showing that these ideas are not really fantastic, and that there is a great deal to be said for them. Am I right in saying that the French Government under M. Herriot actually made a proposal for pooling all arms with the League of Nations?

Lord Davies: Yes, and M. Tardieu's first proposal involved the creation of an international air police force. That was subsequently further elaborated by M. Herriot at the Disarmament Conference, when the French Government offered to hand over its bombing machines to the League, and he definitely allocated certain other weapons to be used exclusively at the behest of the League.

719. *Sir Philip Gibbs*: Was the proposal accepted by French public opinion?

Lord Davies: I believe it was, because I think they had a secret sitting of the Chamber and the proposals put forward by M. Herriot, which I believe had been endorsed by the military authorities, were adopted by the Chamber. Therefore, it represented public opinion in France.

720. *Sir Philip Gibbs*: Do you think there has been any advance with regard to those ideas internationally—at least in Europe?

Lord Davies: I think so because the governments of this country and France—and probably of

other countries as well, I think even Germany—have announced their willingness to consider and possibly to adopt the Air Defence Pact, which means that for the first time you have there the principle which is fundamental to the whole conception of the League of Nations and which, if Article 16 means anything, means that in future national armaments can only be regarded as a policing agency.

721. *Sir Philip Gibbs*: Of course, all these subjects are rather outside the framework of this Commission, as our Chairman has told you, but I would like to come to one point in the statement that you made—a point that I think would surprise some people—where you say that no time is more favourable than the present for coming to terms with the war-traders. You rather suggest that they have been through an extremely bad time—that in effect they are poverty stricken.

Lord Davies: I ought to explain that I was thinking of the period of ten years or so immediately after the Armistice. That was the period I had in mind.

722. *Sir Philip Gibbs*: You did not make that quite clear.

Lord Davies: I am afraid I did not.

723. *Sir Philip Gibbs*: There is quite a body of opinion which thinks that at the present time the private manufacturers of arms are doing rather well.

Lord Davies: In certain industries. I do not think it would include, would it, the production of battleships and naval requirements? I do not know that they have made any very great profits.

724. *Sir Philip Gibbs*: Perhaps not.

Lord Davies: Or in regard to artillery and so on. But, of course, it is true as regards the air. That is the most sinister part of it.

725. *Sir Philip Gibbs*: There is some evidence that there have been very considerable movements of arms from one country to another lately to the benefit of private manufacturers. Would you agree with that?

Lord Davies: I am afraid I have not that knowledge.

726. *Chairman*: Thank you; we are much obliged to you, Lord Davies.

Lord Davies: May I thank you, Sir, for allowing us the privilege of submitting our evidence to the Commission? We are very grateful.

(The Witness withdrew.)

(Adjourned till to-morrow at 10.30 a.m.)

[The Minutes of Evidence taken on Thursday, 20th June (5th Day), are published separately.]

SIXTH DAY

Friday, 21st June, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.
 Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.
 Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.
 Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.
 Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

The Rt. Hon. CHRISTOPHER ADDISON, P.C., M.D., F.R.C.S., M.P., re-called and further examined.

907. *Sir Philip Gibbs*: I think you would probably agree that, whatever system had been in force before the War for the supply of arms, the Government would have been taken by surprise by the enormous unexpected expansion of the War?

Dr. Addison: Oh, yes. I think that the expansion was certainly greater than was anticipated by anyone. The point I am seeking to make is this, that our capacity for meeting the expansion under the existing system proved to be inadequate.

908. *Sir Philip Gibbs*: Then would you agree that your successful efforts to stimulate and create supplies had reference more particularly to shells and light forms of munitions rather than to heavy guns?

Dr. Addison: Oh, no. I gave particulars of shells because I thought it was only fair to give the things that emerged when the Ministry was first started. You see the enormous gun programme, for example, was not formulated until after the Ministry was started, and, therefore, I thought it was scarcely fair to mention that.

909. *Sir Philip Gibbs*: You had to rely on the expert manufacturers of guns, did you not?

Dr. Addison: Certainly.

910. *Sir Philip Gibbs*: To increase that supply?

Dr. Addison: But we built the factories and supplied the material on the same system which applied to all other makers of any other commodity.

911. *Sir Philip Gibbs*: I see; but did you find it was possible to increase the supply of guns by non-expert engineering works?

Dr. Addison: The new big gun factories were mainly concentrated adjoining or in association with the existing big gun factories and, of course, Messrs. Vickers' expert was exceedingly useful, just as many other experts. So far as the making of a gun is concerned, or any other thing, my impression was increasingly this, that our engineering resources were so rich that you could very soon train people to make anything.

912. *Sir Philip Gibbs*: That is the point really which I wanted to get from you. You think many people rather under-estimate the engineering capacity of the general trade and are inclined to think it is really more expert than it actually is?

Dr. Addison: Oh, certainly. The evidence was overwhelming on that; we trained people to do all manner of things with a few months' training. We have in this country a wealth of engineering skill which is almost indescribable, I think.

913. *Sir Philip Gibbs*: There are one or two points I wanted to ask you about which were raised in that Committee of Inquiry into Woolwich after the War—the McKinnon Wood Committee. There was one man—it was Colonel Dennis, I think—who was the Director of Gun Factories at Woolwich, and he stated in his evidence that they came immediately up against a steel ring in this country and that it was quite impossible for Woolwich to do anything about lowering prices. Would you agree with that?

Dr. Addison: Certainly; not only steel but other things. It was not until we took command over

those materials and really until we got the Munitions of War (Amendment) Act powers in January, 1916, that we really broke the ring. But steel was not the only example; there was lead and aluminium and ever so many of them. As soon as we got those powers down went the price.

914. *Sir Philip Gibbs*: Thank you. Mr. Roberts, the Chief Mechanical Engineer, gave evidence that Woolwich was always the headquarters of design and that it was necessary for the directors of the national factories to come and pay constant visits to Woolwich to see the designs and to be educated in the technical aspect of their work. Is that true?

Dr. Addison: Certainly, and we greatly enlarged that because all these things, as you will be aware, have to be tested elaborately and, of course, the whole of the testing machinery and all that was focussed there up in the laboratories.

915. *Sir Philip Gibbs*: That rather bears out your argument, perhaps; I mean to say supposing it were possible to nationalise there would be a headquarters of design?

Dr. Addison: Yes, certainly it does, and later when the time is appropriate I shall have something more to say on that subject.

916. *Sir Philip Gibbs*: Then I will not continue with that because, no doubt, Professor Gutteridge will ask you about that later. Then there is the point of secrecy. Of course under the present system of the private manufacture of arms they all form their own designs, and so on, and I imagine also are rather closely in touch with Woolwich; and one of the witnesses at this inquiry said that he considered it was very necessary for the Government to hold its licence of new weapons and improvements secret, and that under the present system that was difficult. Would you agree with that?

Dr. Addison: I would; and I could tell you, I think, if the Commission were to inquire itself that it would be found that owing to the system of manufacture for foreign orders it is possible for things to be supplied to others, which we would prefer to keep to ourselves. I know that has been so.

917. *Sir Philip Gibbs*: I am going to put a rather general question to you. From what you told us the day before yesterday, and from the documents that you have put in, it does seem to me that when the Ministry of Munitions was actually functioning, after some time and experience, it was very successful in creating supplies for the Army.

Dr. Addison: It was indeed; it created them in abundance.

918. *Sir Philip Gibbs*: You of course have leaned heavily towards the view of nationalisation; but judging from your own experience as Minister of Munitions it seemed to me under a system which was partly that of private manufacture and partly that of national manufacture you did succeed in getting a machine to function very well and, therefore,

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would you consider it possible to maintain a rather similar system, part private manufacture and part national manufacture?

Dr. Addison: I want to assure you that I did not approach this question from any political point of view.

919. *Sir Philip Gibbs:* No, I understand that.

Dr. Addison: We simply learnt by bitter experience what was the way to do it. You have to have, I think, your central agency, as I have indicated.

920. *Chairman:* Organisation.

Dr. Addison: Yes, and factory work; because, for the reasons I have indicated, I think the manufacture of your Group A stuff in peace time is more economically done under state manufacture. At the same time you should have all your preparations ready for mobilising every appropriate manufacture amongst our private engineering resources. There is so little magic in either A doing this or B doing that, provided they are competent firms, that there is no necessity whatever to have special people.

921. *Sir Philip Gibbs:* Do you think unity of control necessarily involves state manufacture?

Dr. Addison: I do not see how you are going to do it without. For instance, supposing you take a simple thing like T.N.T. T.N.T. in the quantities which would be wanted for shell filling, and so forth, is not ordinarily made by the chemical industry as an explosive—not in those proportionate quantities; and if you are going to do it for your peace-time and reserve programme, I think there is no doubt that the best way of doing it would be to have a state factory. It applies with less force to one commodity perhaps than it does to another, but as to the more specialised products I do not think there is any doubt what is the more economical way of doing it.

922. *Sir Philip Gibbs:* In your own experience in the Ministry of Munitions you were handling a machine which was in part private manufacture?

Dr. Addison: Certainly; and I think in any case you have to have a machine, as I hope I have made clear, which deliberately sets out to develop the resources of private manufacture. These of course, are essential directly you want to get your big scale production and to enlarge your output. That is quite a different thing from private manufacturers doing it independently on their own.

923. *Sir Philip Gibbs:* Yes; but do you think it would be possible to establish a system by means of which you could get very strong central control over private factories?

Dr. Addison: I really do not think that is practical politics. If a man is carrying on a business for his private profit he is entitled to manage his business himself and it is not fair to saddle him with the responsibility of maintaining a lot of machinery which is not used, and so on. That is the taxpayers' job in a matter of this kind. You have no right to saddle it on to private firms, and, as a matter of fact, it would not work in practice. I am sure it would not.

924. *Sir Philip Gibbs:* I suppose it is rather a formidable thing to establish a state monopoly of arms, and I was going to ask you whether you thought perhaps it would create, at any rate for a time, a rather excessive burden on the taxpayer?

Dr. Addison: I do not think so. Of course it is difficult—everything is difficult; it is a big job; and there are lots of difficulties which would have it is a fantastic idea?

925. *Sir Philip Gibbs:* But you would not consider it is a fantastic idea?

Dr. Addison: Oh, good gracious, no; certainly not.

926. *Sir Philip Gibbs:* Would that include the building of war vessels?

Dr. Addison: We have our own dockyards now.

927. *Sir Philip Gibbs:* Yes, but I am afraid the proportion of government-built vessels is rather small.

Dr. Addison: It would include the building of war vessels. We might have to take over an existing dockyard from a private firm and pay for it.

928. *Sir Philip Gibbs:* You do not think that would create an enormous burden of taxation?

Dr. Addison: I am quite sure the saving in cost and output would more than compensate us for the capital cost which, of course, you would spread over an appropriate term of years in any case. Of course I am postulating successful and competent management.

929. *Sir Philip Gibbs:* I think you did actually read the evidence of Sir Eustace d'Eyncourt?

Dr. Addison: I did.

930. *Sir Philip Gibbs:* I take it you do disagree very strongly with the points that he made that first of all a state monopoly of manufacture would eliminate a great deal of initiative from the private firms in the way of design and improvement.

Dr. Addison: I have taken the liberty of getting out the actual papers on that. Of course Sir Eustace d'Eyncourt was himself, as you are well aware, at the Admiralty, and the tanks committee (or it was called at that time the "land cruiser," I think) was under his chairmanship. Perhaps I may be allowed here to hand to the Commission this paper just to look at and not to be reproduced. (*Document handed to the Commission.*) You will see that is an excellent case of the system which I think is preferable namely, a central department dealing with design, invention and so forth, but which uses and mobilises ideas from outside and places facilities at their disposal for being tested out. With that I will put in here, if I may, a typical monthly report which was made to me from the Inventions Department, and you will see the variety of things which they were handling. At that particular time there were 2,286 suggestions that had actually been developed and made use of. I think these papers will give you an example, or, shall I say, an impression, of the kind of system which I believe is best adapted to open out private initiative and give it a chance, and still to combine with that the central direction.

931. *Sir Philip Gibbs:* You have no objection to our seeing those papers?

Dr. Addison: No; I brought them on purpose, but I think it would be better if they were not printed.

932. *Sir Philip Gibbs:* The costings system is a very important branch of your work and, of course, from the evidence you have put in, it did result in enormous economies. Do you think, from your own knowledge, that your experience is being made use of now?

Dr. Addison: Not so much as it ought to be, I am afraid. We have slipped back a good deal; but I have no doubt it has been made use of, and I think it did lead to the private firms generally making a much better use of good cost-accounting methods—at least many of them—than they had done before. In that respect I think the influence is permanent and very valuable. So far as the state departments are concerned, I have my misgivings.

933. *Sir Philip Gibbs:* There is one point which perhaps is not very important but, still, it is a rather interesting point. You published an article on 3rd March of this year in which you said you might find that there are agreements between British and foreign firms by which a British firm gets a commission on every shell fired by the foreigner concerned; and you said that after the last war Krupp sued a well-known British firm for royalties on every one of the 123,000,000 fuses sent over in hand grenades by British soldiers. Could you tell me whether that royalty was paid?

Dr. Addison: That is a question of which I should require notice. I had the facts before me at the time when I wrote that article.

934. *Sir Philip Gibbs:* You could not say off-hand?

Dr. Addison: No, I would prefer not to say, but I know the statement is correct enough; and, of course, if you remember, in the Inquiry in America there was considerable evidence, I think, particularly in the case of submarines, where a British firm, or an American firm I think in this case, was receiving a share of the profits out of orders obtained for others, and I see that in paragraph 5 of this report,* which I quote in my statement of evidence, the accountants reported to me, in the second paragraph, "There is reason to believe, although the point has not yet been raised, that in the case of Vickers, at least, the cost of the world-wide selling organisation upon which they have laid so much stress, has been amply met by the commission earned on orders placed in America for the British Government." That is the same kind of thing. I have no doubt I am not complaining; it is the system that if a firm has a patent or some rights in a thing, whoever makes it, they are entitled to what they are entitled to under it. I do not think you can complain of it; it attaches to the system.

935. *Sir Philip Gibbs:* You have said some rather interesting things about the subject of aeroplanes and the differences of design, and so on. First of all, I should like to get the point that the Government during the War had to rely almost entirely on the private manufacture of aeroplanes, had it not?

Dr. Addison: I have here the actual paper, the report which was made to me by Lord Weir and the late Sir Percy Martin, whom I appointed to be head of this section of supplies when it was handed over to the Ministry of Munitions. You see, the thing was new, and most of the machines were made at that time in factories run by private firms. What happened was that we equipped factories for specialised products, a type of machine or a type of plane, or whatever it was, and they were made controlled establishments like the rest and managed by the personnel on the spot of the different firms concerned; in some cases they were our own. You could not have a better case of the need for centralised direction than there was in the case of aeroplanes. It was complete confusion before. During the latter half of 1916 there was the Air Board, the War Office and the Admiralty placing contracts in all sorts of ways with a great variety of firms. We often found one shop, for example, making three or four or even more different types, we will say, of parts of engines or whole engines, and so forth, and the result was that they were not getting any supplies. There was a great duplication of types. Here I can give you actual figures. I abstract them in the statement of evidence, paragraph 53. The result of centralised control and direction of the system that I am speaking of was, first, that we pooled orders; instead of one shop making half a dozen things it made one thing. We had to scrap the whole system of orders and produce a great simplification in the number of designs, and so forth. Whilst the work was actually being done, it was being done, most of it, at that time in private firms' shops, and very well done, too; but owing to the unco-ordinated system you were not getting the product, until we had supplied them with the machine tools, materials, and everything, and could begin to get output.

936. *Sir Philip Gibbs:* Under a different system do you think it would have been possible to obtain the constant development and progress in type which was made during the War by the private firms?

Dr. Addison: With great respect, it was not made by the private firms. The system which was adopted to encourage improvement in type was the establishment under Lord Cowdrey (I think it was), who was the first President of the Air Board as it

was then set up, and on that central body there were representatives of the more alert private firms and representatives of the different departments, the services, and so on, and in that way they were able to pick the brains and make use of the private people as well as the initiative of the men in the Air Force itself.

937. *Sir Philip Gibbs:* I did not know that.

Dr. Addison: You have to make the best use you can of all sources of ingenuity instead of leaving them scattered.

938. *Sir Philip Gibbs:* So it really was not the direct initiative of the private manufacturers?

Dr. Addison: In some cases it was, and in some cases it was not. The point I am on is that you cannot make use of it, but not for a moment would I in any way disparage their immense service—not a bit—but they had not a chance before.

939. *Sir Philip Gibbs:* Of course, you had to look at two things: the quantity of supplies as well as the type?

Dr. Addison: Yes. Of course, it was continually developing, as it is now, no doubt. There are all kinds of ingenious men who are always making for improvements, sometimes in private firms, sometimes in the services.

940. *Sir Philip Gibbs:* You had some very interesting things to say the day before yesterday about labour. Of course, some points are historical, the fact that skilled labour was recruited for the trenches and had to be called back again. I suppose that was due to the fact that the authorities did not know how long the war was going to last, or the enormous expansion of our army, and so on?

Dr. Addison: Yes; and the patriotism of the men themselves—they all rushed to the colours.

941. *Sir Philip Gibbs:* But, of course, there were very grave troubles during the War with regard to labour, were there not?

Dr. Addison: Terrible—two years of it.

942. *Sir Philip Gibbs:* Do you think that under a national system of manufacture those troubles in the future might be less or greater?

Dr. Addison: When you are dealing with millions of people you are bound to have trouble whatever is the system, but it was quite clear before we came into existence that the attempts to divert labour, we will say, from a non-munition manufacturing firm to a munition making firm were giving rise to endless disputes. It was because of that series of disputes that what is known as the Treasury Agreement was arrived at, under which we agreed that certain standards should apply to payments for piece work, and so on; that when a man moved from one district to another where the wage rates were different, certain other principles should apply. In working it out we had an infinity of trouble—of course we had—and I am afraid you will have, human beings being what they are, wherever it happens.

943. *Sir Philip Gibbs:* You do not think it would be rather an additional danger, if all the manufacture of arms were under the state, that labour might find it easier to attack or resist state authority, being entirely under one authority?

Dr. Addison: I am not afraid of that. You see, we had trouble everywhere, but we had more trouble on the Clyde than anywhere else, and they were private firms, and then we had a lot of trouble at Woolwich as well. I am afraid that under circumstances of that kind there are always plenty of opportunities of difficulties cropping up; but, especially the Clyde, which was almost entirely large private firms, was a continual source of trouble. I am not blaming the private firms—of course not. It was a very very difficult time. New questions were cropping up every day; you had to deal with them as best you could, but you certainly could not deal with them unless you had some body of persons of experience who were gradually gathering experience, like our labour department was, and getting

* Appendix, p. 120, Exhibit C.

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to know how to deal with them. Otherwise we should have had an everlasting series of outbreaks and trouble. We had plenty as it was.

944. *Sir Philip Gibbs*: I think you rather wanted me to ask you a question about sub-contracting, and it would be very interesting if you could develop the difficulties that you had and which were found to exist.

Dr. Addison: In paragraph 69 of my statement of evidence, I epitomise some of the main reasons why the system of sub-contracting cannot be relied upon to give you the expansion which you want. In the first place, you have the human difficulty, which I can assure you cannot be exaggerated, of the objections of men moving from one firm to another; so that, so far as reinforcement is concerned, that is outside the power of the major contractor. He cannot supply his sub-contractor with additional labour, he cannot supply him with material in an orderly manner. They do that for themselves; or, at least, they wish to obtain their own materials. He cannot supply them with additional machinery if they want any, because at that time they were all scrambling for machines, or whatever it was; so that the limitation of the sub-contracting possibility in that respect is due to the capacity of manufacturing departments of the sub-contractor. Well, that means that he has to be helped in the job; he has to have specifications, drawings, gauges, and an orderly supply of parts, particularly of key parts, and all those things are not the business of the major contractor, and the sub-contractor resents him coming into his place to interfere with the way he does his job, and that is bound to apply when you rely upon that system.

945. *Sir Philip Gibbs*: You did in fact have to abolish that system, did you not?

Dr. Addison: We did. It was found to be associated with so many sources of difficulty and trouble that we abolished it, and we developed a system whereby we diverted the orders ourselves. The appropriate statistical departments, of course, were in touch with the requirements as to machinery, materials, and what-not, that were supplied, and the sub-contracting previously intensified the scramble for materials just as it did for machinery, and that was another reason why we simply had to abolish it and make a central method of supply. It did in fact break down as the best way of opening up the manufacturing possibilities of the other firms—it was not the best way of doing it. Then, of course, with sub-contracting you always have—and I do not see any way of escaping from it—the difficulty about prices. Naturally the major contractor, quite fairly, expects to make something out of it, in which case the sub-contractor has to take less than the terms of the major contract, and that leads to all manner of questions. That was one of the reasons why, instead of sub-contracting, we were inundated with demands that firms should make for the state itself, and it was that agitation, shall I say, which led to the formation of the local committees which it was found had been called together in a scrappy form in some places before the Ministry was created. Then there is always this about prices, that they always brings up questions of wage rates, which vary in different districts; and hanging around the issue of prices as between the major and the minor contractor there is a whole mass of squabbles which arise. That was another of the reasons why we felt that dealing directly through the munition committees was a cleaner method.

946. *Sir Philip Gibbs*: I imagine that in the case of another war, if this system of private manufacture were continued, the system which you actually adopted as Minister of Munitions would have to be enforced at once, would it not, based on past experience?

Dr. Addison: Certainly.

947. *Sir Philip Gibbs*: You would have to have control; you would have to have this costings system,

and you would have to have absolute unity of direction?

Dr. Addison: Certainly, straight away.

948. *Sir Philip Gibbs*: I think that one of the strongest arguments with which this Commission will be faced from people who violently disagree with you is that in a period of peace, if it were to be a considerable period of peace, the state manufacture of arms would tend first of all to become very static and standardised, and, secondly, it would be impossible during that long period of peace to maintain either the skilled labour or the reserves of stock which would be necessary at the outbreak of war? Would you agree at all with that argument?

Dr. Addison: No; it has no relation to reality at all. You had three points; would you just remind me of them?

949. *Sir Philip Gibbs*: First, the static condition?

Dr. Addison: From the national point of view it surely is better that you should be delivered from a system whereby a number of people are touting about the world in order to get orders for this, that, or the other warlike novelty. There is no particular advantage in that that I can see.

950. *Chairman*: May I interrupt you for one moment, because that is an important point you have mentioned: that the fact of our nationalising the trade would not really diminish the amount of touting that goes on in the world. It would simply be done by other nationals unless the system became international?

Dr. Addison: Of course, we cannot control what other people's nationals do. It would subtract from the sum of touting when it was contributed by our nationals.

951. *Chairman*: It might increase the number.

Dr. Addison: That might be so, but we have some very ingenious and competent nationals. At all events, it does seem to me that no advantage arises and many disadvantages inevitably attach to that system.

952. *Chairman*: If it tended to reduce touting there might be something to be said for it, but my present impression is rather this: that if they went out of business there would be more people trying to get into it, and more touting?

Dr. Addison: In other countries?

953. *Chairman*: Yes.

Dr. Addison: So far as that is concerned, I am afraid, with respect, that that would mean that you could not do anything in this matter until the time arrived when you got all nations to combine.

954. *Chairman*: I agree we must try and do what we can, but it is no good advancing an argument in favour of doing something which is not a sound argument.

Dr. Addison: Of course, I think myself that it would in fact diminish touting, shall I say . . .

955. *Chairman*: It is a general word.

Dr. Addison: commercial travelling, if you like —if the whole sum of our factories was withdrawn from the business; because we have, I believe, about one-third now of the export of munitions of one sort or another, so far as there are any made in peacetime in this country, and it would be a material subtraction, and I should not be afraid of the other touts. In any case, coming to the point that Sir Philip Gibbs put to me, I think that the stereotyping of business which he has in mind is not more likely to occur under this system than under the other. It depends entirely upon the management and the men who are in charge. Now let me give you a case where exactly the opposite happened. There was the Vickers trench mortar; that was a sort of stock thing if you like which was pressed on other countries. It was in fact the initiative of the departments and of men from the front, like Newton and others, taken up by the departments, which led to the development of the more modern and serviceable mortars, and Sir Wilfrid Stokes in particular came to us and we placed our services at his disposal.

956. *Professor Gutteridge*: Where was he before?

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Dr. Addison: I think he was somewhere in the eastern counties.

957. *Professor Gutteridge:* He was an engineer, was he not?

Dr. Addison: He was an agricultural machinery maker.

958. *Professor Gutteridge:* In other words, new blood came in from outside?

Dr. Addison: Yes, that is right. He was not a munition maker; I think he made agricultural machinery somewhere in the eastern counties. Anyhow, he came along with his suggestion; we helped him to develop it, and after its usual teething troubles it became adopted; but we had a great struggle to get it introduced as against the stock pattern, which was a patent of a private firm, and which was practically discarded because it did not stand the test.

959. *Professor Gutteridge:* I should have thought that was an argument against you, if I may say so.

Dr. Addison: Not for my system.

960. *Professor Gutteridge:* I should have thought it was. Your system had to be broken down before this new thing could come along.

Dr. Addison: I was answering the question as to whether the stereotyping—

961. *Professor Gutteridge:* I will not interrupt you.

Dr. Addison: In that case it was the central department that broke down prejudice.

962. *Sir Philip Gibbs:* There were two other points which I made in the same question. One was with regard to the belief that there would be a deterioration in skilled labour under a national system and after a period of peace.

Dr. Addison: All I can say is that they were continually coming to ask us to spare men from Woolwich. We had some of the finest men in the world.

963. *Sir Philip Gibbs:* I think the argument goes a little further than that. If private manufacture creates constant skilled labour for a particular purpose, and if that were abolished, would not you find that gradually the skilled labour began to deteriorate and disappear?

Dr. Addison: It is not arms manufacture that maintains and produces skilled labour; it is the thousand and one things which people are making all the time; and the reserve of skill that we tapped from firms that had never made munitions at all was so immense that the other was a drop in the ocean. We tapped some of the best skilled men in the country from the watchmakers in Hatton Garden, and what applies to watchmakers applies to lots of the other trades.

964. *Sir Thomas Allen:* Are we then to take it as a general conclusion from your evidence, and from your replies to questions so far, that you are convinced that state monopoly of the manufacture of armaments is a sound business proposition?

Dr. Addison: Yes.

965. *Sir Thomas Allen:* Viewed from the point of efficiency and economy in time of peace or in time of war?

Dr. Addison: Yes. In time of war it would require to expand and make use of private capacity as I have explained; I am satisfied that is the proper way of doing it as a business proposition.

966. *Sir Thomas Allen:* No difficulties at present present themselves to your mind in respect of raw materials or supplies of manufacture?

Dr. Addison: No, you get your raw material equally well; in fact if anything perhaps you would get it more easily if you ordered it in bulk; I think you would. That presents no difficulty.

967. *Sir Thomas Allen:* Would you proceed to give it consideration from the national point of view apart from any international consideration.

Dr. Addison: Yes, I should certainly. I think we have to do what is the right thing.

968. *Sir Thomas Allen:* And in that particular you would go even further than the American plan now being considered in Geneva?

Dr. Addison: Yes. I have studied that plan with great care and quite frankly I do not think it will be found to work. I think you must either do one thing or the other. I do not think that sort of hybrid would combine industrially with the world now in peace time.

969. *Sir Thomas Allen:* Do you think that the traditional obstacle of the services or the political obstacles that would be put up would be a more difficult proposition to overcome than those of actual manufacture?

Dr. Addison: I think myself of course there are lots of difficulties whichever way you deal with it; but I think if you put up a fair proposal, which I should seek to do, manufacturers would be perfectly prepared to give it fair consideration. In fact I could mention the name of the firm that I know which has a very large quantity of most costly plant idle, they do not like it, and I think if you made them a fair proposal as to how the matter was to be dealt with they would be rather glad of it. I think you have to do the thing fairly and if you did that you would be treated fairly.

970. *Sir Philip Gibbs:* Do you think there would be great opposition on the part of the services themselves?

Dr. Addison: I think there would be a good deal of opposition on the part of some sections of the services but by no means on others. It depends on the section of the services we are talking about.

971. *Sir Thomas Allen:* When Colonel Carnegie came before us he advocated a scheme of a national board which would be free from what he called political or military control. Personally I cannot conceive any organisation being set up which would be absolutely free from some political control.

Dr. Addison: You cannot have it.

972. *Sir Thomas Allen:* But what I should like to ask you is in what relationships would the three different service departments stand to your central supply and manufacturing departments; would they be in the nature of consultants, collaborators, or would they have representation on your central authority?

Dr. Addison: The arrangement substantially would be that the service departments would say what they wanted. They would formulate the programmes and discuss amongst themselves first, then with the supply departments, the quantities that might be forthcoming in say X months, or whatever it was. The service departments, those that were using the munitions in other words, would be required to be represented on your design department much on the fashion of the Air Board scheme that has been provided; but apart from that the supply department would be charged with the duty of producing the goods from start to finish and it must have all the matters relating to production under its control. The service departments would say what they wanted; it would be their business to use them. With regard to the first part of your question, we did have in Canada, under Sir Joseph Flavelle, I think it was, a Munitions Board set up there, and I expect it was that type of organisation which Colonel Carnegie had in his mind.

973. *Sir Thomas Allen:* I think he was in charge of it.

Dr. Addison: He was at a later period and it worked, I think, on the whole pretty well; but it was an improvised arrangement at the time. At all events it worked more successfully than the system which had been previously adopted.

974. *Sir Thomas Allen:* Reverting to the evidence of Sir Eustace d'Eyncourt referred to on Wednesday and again by Sir Philip this morning, he did not imply that government servants are not fully equal to men outside, but rather that their ardour was damped by certain conditions of service, a failure really to reward inventive genius.

Dr. Addison: Well, he was a government servant himself.

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975. *Sir Thomas Allen*: He pointed out, for example, that a patent taken out by a servant of the Admiralty must be assigned to the government department for which he worked. You told us in reply to a question put to you by the Chairman on Wednesday that you would favour compensation for displaced private armament manufacturers. You are out for efficiency just as we are; would you favour or encourage inventive enterprise within your central department by a modification of the system now prevailing in each government service?

Dr. Addison: Yes.

976. *Sir Thomas Allen*: In other words, would you reward inventive genius apart from salary or even promotion considerations.

Dr. Addison: I would be willing without any prejudices to adopt the system which I found worked most successfully. If a monetary reward was appreciated then I should have no hesitation at all in providing it, provided I got the results which were worthy of being obtained. To go to your first point, *Sir Eustace d'Eyncourt* was, as I have said, at the Admiralty. I think the Inventions Department (the records of which you will see) provides an excellent example of a good system of evoking and rewarding inventions—good ideas—either outside or inside the service. You have, of course, and we always shall have, the service prejudices and traditions, and we shall never get away from them, human nature being what it is.

There must be a different system from what you have now, because now you have it scattered amongst different services partly relying on firms, and the services are used more particularly for inspection and that sort of thing. It must be under the supply department—a special body of men whose job it would be to do this and to develop design and encourage whatever it is. That must be their job; and my experience is that if you give a body of public servants a job to do they are competent fellows and in the main they will take a pride in doing their job just as much as anyone else. For my part I have found them extraordinarily competent, whatever job you give them to do. I may say this, too, that if you look through that document you will see that there are thousands of poor fellows who get their ideas blocked under the existing system; they are not on good terms with their foreman very likely.

977. *Sir Thomas Allen*: That is what I want to avoid.

Dr. Addison: That happens wholesale.

978. *Sir Thomas Allen*: Can you give us any assurance that they would not be blocked under your scheme?

Dr. Addison: I think the fact that we had 30,000 of them to deal with is a proof that they got a better chance. I do not say they might not be blocked to some extent under either system—they will—but I am quite sure they are blocked now. Everyone of us who knows this first hand must have in his mind lots of cases where good fellows' ideas have been smothered.

979. *Sir Thomas Allen*: The witnesses who came before us on behalf of the League of Nations' Union expressed considerable divergence of opinion on the relative merits of state control and state monopoly of manufacture of arms, and that divergence I gather extends very largely to the members of the Union apart from the witnesses who appeared before us. Could you help us in this particular? Have you any views why either of these is more or less desirable than the other, state control as distinct from state monopoly?

Dr. Addison: I think you must have both within limits. I am only going on the result from one's experience as to what we found was the best way of working. I think that certain things the state itself must be responsible for and, particularly say in the chemical trade, you will find it more desirable and advantageous to have a system of control—in the marginal supplies, so to say. We have to work it in the most successful and practical way. I think for marginal supplies the control

system would have to apply. For others—what I call Class A, and gas and chemical warfare—the state itself would be responsible.

980. *Sir Thomas Allen*: Lord Davies told us on Wednesday that the time was opportune and favourable to come to terms with the armament manufacturers more specially with regard to air equipment. Do you think, as we are entering a new era with regard to the production of aircraft, that the state could begin to implement your proposals by an immediate start in aircraft production?

Dr. Addison: Yes, I do.

981. *Sir Thomas Allen*: Or failing that, assuming control over aircraft production as a first step?

Dr. Addison: The trouble is I think certainly with this great expansion of aircraft manufacture—

982. *Sir Thomas Allen*: My point is that there is a new enterprise as it were.

Dr. Addison: That is right.

983. *Sir Thomas Allen*: If your system is of any advantage at all you could prove it, say, with regard to a new enterprise such as this.

Dr. Addison: I think you could; and I believe that aircraft and munition manufacturers as business men would look at the proposal fairly just like other people would if you had a fair proposal to make. There are always a good many difficulties when you get into questions of specialised material that you want for supply, and so forth. It might be practicable—I would not express an opinion without a close examination of it or a closer examination—to isolate aircraft engines and aeroplanes as a state thing and not extend your state control or management to the others; but I should have serious misgivings as to whether that was the successful way of doing it.

984. *Sir Thomas Allen*: There is as you know one existing classical example of a country where armaments, in common with other forms of production, are in the government's unfettered hands and no difficulties arise as to the righteousness there of one form of state control or the iniquity of another. In view of your proposals do you see at all a case for warning or encouragement in such an example?

Dr. Addison: You are speaking of Russia. One hesitates to draw conclusions unless one has a very close knowledge of the facts, which I do not profess to have of that particular country. I am quite sure with regard to our own country, which I do know, that it would be a practical proposition, and that is as far as I would care to go. I have deliberately excluded other considerations—not that I wish to minimise their enormous importance—but I have tried to deal with it purely on its merits as a manufacturing proposition. I am sure it could be done in this country. What conclusions I am to draw from the Russian example I would not venture to say, because I do not know the details sufficiently well.

985. *Sir Thomas Allen*: You made out a very strong case against the continuation of private enterprise in armaments manufacture; but considering the body of your evidence you leave us a little uncomfortable as to the peace-time activity or inactivity of our own government departments. You yourself told us, for example, that there was considerable dependence by the military authorities on the expert advice of the armament manufacturers. You pointed out, as *Sir Philip Gibbs* indicated, an entire lack of any costing system within the departments, and you were not sure, in your own words, that any effective remedy is being made in that direction which is now common, as you know, in any modern business enterprise.

Dr. Addison: Yes, but the reason for that is that we have reverted to the other system.

986. *Sir Thomas Allen*: Yes.

Dr. Addison: If the state had to do it it would have to have it.

987. *Sir Thomas Allen*: I want the danger avoided of any possibility of reversion under any new system, and what I was going to ask you was this; apart from war-time experience has any government at

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[Continued.]

any time taken their arsenals and their armament workshops seriously as a state service or a state necessity; have they considered that from a practical point of view?

Dr. Addison: I cannot say that they have, but you must remember that the whole business has entirely changed since the last war—the whole outlook, and so on; the dimensions of it and all that have completely altered, but I cannot tell you what other states have adopted this method in peace time.

988. *Chairman:* I think the question was directed only to our Government and not to foreign governments.

Dr. Addison: I see. I am quite sure if once the system were established and became the working system no government would want to upset it any more than they upset the Forestry Commission or the Central Electricity Board, or anything else. When these things get established and get into working order successive governments carry them on. I do not think that question would arise. So far as the departments' activities were concerned I think whilst there might at first be a bigger volume of work in accumulating adequate reserves, and so on, and later slowing down when you had accumulated the reserves, it would in fact come to the maintenance of a certain level of manufacture with your machinery ready for expansion if it were required. That is what it would come to and it would be a much more economical way than scattering it about in twenty different places.

989. *Sir Thomas Allen:* Would you say under the pressure of armament firms that orders to keep them going and render them efficient in any case of emergency that the efficiency of our present government factories has been reduced below the limit of safety?

Dr. Addison: I think they have been reduced, but whether they have been reduced below the limit of safety or not I could not say; but I am quite sure the pressure for orders from private firms must have tended in that direction. Whether it has reduced them below the limit of safety I would not like to say; I do not know.

990. *Sir Thomas Allen:* You will agree that only highly industrialised states can profitably manufacture appreciable quantities of armaments.

Dr. Addison: Yes, that is so.

991. *Sir Thomas Allen:* Given your central authority of supply and manufacture by the state what would be the position under your scheme of those non-producing countries which now depend upon our private manufacturers for supply?

Dr. Addison: The extent of this business, which I have informed myself about since our last meeting, is really much less than a good many imagine.

992. *Sir Thomas Allen:* It is one-third of the total output.

Dr. Addison: I know the total value of the output of the whole affair in gold dollar statistics: I have turned them into sterling, subject to the decimal points. The total value of export of arms from Great Britain during 1931, 1932 and 1933, which are the last years I have worked out, was £2,952,000, £2,893,000 and £3,306,000. Well, it is a bagatelle. It is nothing compared with the manufacturing capacities, and, if I may say so, it is quite unreasonable to suggest that the maintenance of that is going—I am not saying you suggest it, but I know there is a suggestion—to secure the maintenance of the efficiency of these great firms. It is not. It is a bagatelle.

I think what you would have to do, Sir Thomas, in reply to your question, is this: It would necessitate an international arrangement as to the supplies to be obtained or provided for states which did not manufacture for themselves; it would require an international convention.

993. *Sir Thomas Allen:* But in the meantime they must be protected in some way or another. In the meantime would you sell from your state department?

Dr. Addison: So far as it was agreed to supply them by this international convention. That is the only way in which they could be supplied.

994. *Sir Thomas Allen:* Would you have a sales manager under your scheme?

Dr. Addison: I should be sorry to see a national commercial traveller touting for orders for arms.

995. *Sir Thomas Allen:* Just a moment. Given a national commercial traveller, would he be expected to be any less eager to obtain orders?

Dr. Addison: I would not appoint him on those terms.

996. *Chairman:* You would not employ him to do nothing.

Dr. Addison: No, I would not. It would not be one person at all, it would be some body. Rifles would go to the rifle department, and something else would go to another department. The expression "a commercial traveller" is a figure of speech. There would be anyhow a jolly sight fewer of them than there are now running about the world.

997. *Sir Thomas Allen:* In what position, say, would your Indian Empire or the Dominions or Colonies be under your scheme?

Dr. Addison: They would negotiate with the state departments in the ordinary way. They would be supplied.

998. *Sir Thomas Allen:* You see no danger of them setting up any departments at all?

Dr. Addison: They are very independent people.

999. *Sir Thomas Allen:* I know they are.

Dr. Addison: And they will do what they wish, whatever we think here. I think that position would apply either way.

1000. *Sir Thomas Allen:* Suggestions have been made to us that we should enjoy the benefits of both systems, state manufacture and private manufacture. Can you suggest any way—because that is the important point we have to consider—of removing the objection to the profit-making in the arms industry, or what is called taking the profit out of war, and still leave the private manufacturer to make any of the weapons of warfare?

Dr. Addison: Quite frankly as a business proposition I do not see how you could work it. You see that is one of those amiable arguments which is held out by people who have never had the job to do. It is not fair to ask a private firm to use their machines, *et cetera*, *et cetera*, without profit. They are working for profit; that is what their job in life is. Supposing there is an order to use one shop on this restricted profit basis, or whatever it is, and there is another order in another shop of a more profitable kind—what will happen? Only one thing will happen; the thing which has the more profit in it will have precedence of the thing which has the less profit in it; and quite right, too; you cannot blame them for it; and it would not in fact work. I think you could have a system of controlled establishments or controlled orders for your marginal supplies in the way I have tried to indicate, but to think you could ask private manufacturers who were carrying on a *bona fide* business to do some of their work without profit, and some with profit, would not in fact work in practice.

1001. *Sir Thomas Allen:* Can you visualise nationalisation solving any moral difficulty?

Dr. Addison: I think the moral difficulties and the international difficulties are very vastly less under the suggestion I have mentioned, but you will still have difficulties—I am afraid that is the frame of mind of people—but the difficulties will be less.

1002. *Professor Cutleridge:* Perhaps you would help by answering a few questions; first of all with regard to certain difficulties which have occurred to me; and then I will ask you something about those supplemental matters which were held over from last time. Your proposal, I think, is in the nature of an experiment, is it not?

Dr. Addison: No.

1003. *Professor Cutleridge:* It has never been tried before, has it?

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Dr. Addison: We did it; that is my point.

1004. *Professor Gutteridge:* With great respect to you, it has never been tried before, has it?

Dr. Addison: We worked it; that is why I am suggesting it.

1005. *Professor Gutteridge:* I suggest to you it has never been tried, and that state monopoly of the armaments manufacture has never yet been put to the test in an emergency which would arise on a sudden outbreak of war and on a large scale such as occurred in 1914. Could you give me any instances where that has happened?

Dr. Addison: The point I am suggesting to you is that there was not a state monopoly on the outbreak of war, and it was not until we did establish a state monopoly that we obtained adequate supplies.

1006. *Professor Gutteridge:* That is not the point I am on. There are no instances in history, so far as I am aware, of a country which had nationalised the arms industry and then suddenly had to face such a catastrophe as occurred in 1914?

Dr. Addison: No, that is true.

1007. *Professor Gutteridge:* And therefore—

Dr. Addison: We have to learn our lesson.

1008. *Professor Gutteridge:* Therefore I say it is an experiment.

Dr. Addison: With great respect, it is not an experiment. I am saying we tried the experiment the other way round in 1914 and it failed—

1009. *Professor Gutteridge:* It does not follow that your experiment will succeed, necessarily, does it?

Dr. Addison:—and it did not succeed until we did it the other way. That is not a fancy; that is a fact.

1010. *Professor Gutteridge:* That is what I want to press; because all your experience, you know, is war experience, is it not?

Dr. Addison: Yes.

1011. *Professor Gutteridge:* Your experience does not relate to what happens when war breaks out on a huge scale, as it did in 1914?

Dr. Addison: But is it not the test that matters?

1012. *Professor Gutteridge:* Yes. That is what I am suggesting to you: that it has never yet been tested.

Dr. Addison: But I suggest to you, with great respect, that is what we did. We did test it—

1013. *Professor Gutteridge:* Then we must agree to differ; that is all.

Dr. Addison: We tested it in a most dramatic fashion.

1014. *Professor Gutteridge:* In some respects I think the armaments people were not unsuccessful, were they, from 1914 to 1919? Let us take shipbuilders.

Dr. Addison: Certainly. The point was that they failed to keep their promises, but under the system which was developed we enabled them to make good.

1015. *Professor Gutteridge:* You are speaking of shells, are you not?

Dr. Addison: No; it applies to all.

1016. *Professor Gutteridge:* What about warships?

Dr. Addison: The same applies. As you know, with regard to the building of big warships, which was undertaken substantially under a similar system, we supplied all the steel.

1017. *Professor Gutteridge:* Were there complaints of huge shortages of deliveries in the case of warships?

Dr. Addison: There were huge complaints of shortage of supplies for merchant ships. As to warships, no, I think not. They were made in all sorts of places.

1018. *Professor Gutteridge:* The reason I asked you that was this: As a matter of fact, a good deal of skilled labour was in fact absorbed by the shipbuilding yards, was it not?

Dr. Addison: Well, we mopped up all the skilled labour there was, and I would not have said that the proportion employed in the shipbuilding

yards was higher than it came to be in other branches of production. They were all very greedy people. One of my difficult jobs was to hold the balance between the competitors.

1019. *Professor Gutteridge:* You are still following this matter, I suppose, and keeping in touch with developments in the matter, are you not?

Dr. Addison: I try to keep myself reasonably well informed. I would not put it any higher than that.

1020. *Professor Gutteridge:* Have you heard it said that if we were faced with an emergency now there would be very considerable difficulty in getting skilled workmen on certain types of armaments manufacture?

Dr. Addison: Oh, no.

1021. *Professor Gutteridge:* You do not agree?

Dr. Addison: No; certainly not.

1022. *Professor Gutteridge:* You have not heard proposals made, for instance, for the importation of unemployed watchmakers from Switzerland in order to supply the deficiency?

Dr. Addison: A man who makes a proposal of that kind has not any idea of the row that would arise as soon as he tried to operate it. There are tens of thousands of skilled people in this country; I can assure you the skill of the British people is almost beyond description.

1023. *Professor Gutteridge:* I am very glad to hear you say that; but, as a matter of fact, I do suggest to you that there are certain branches of armament making where, owing partly to the fact that there have been so few new entrants into these branches of trade, owing to depression, and so on, there is a definite shortage.

Dr. Addison: Would you mention one? It is not my business, perhaps, to ask questions, and perhaps that is an impertinence.

1024. *Professor Gutteridge:* I have been told, for instance, that there is already a shortage in certain branches connected with the manufacture of aeroplane engines.

Dr. Addison: I will undertake to say that, whatever the engine was, if you had a rational system for mobilising and training your skilled men you could obtain them in abundance. I am quite sure of that.

1025. *Professor Gutteridge:* I am only putting these things to you because we shall no doubt have them before us.

Dr. Addison: I should not attach any importance to that sort of thing. I am sure it is wrong.

1026. *Professor Gutteridge:* You are certain of that?

Dr. Addison: Absolutely.

1027. *Professor Gutteridge:* May I now pass on to deal with those supplemental matters which you asked us to give you an opportunity of saying something about. The first is Exhibit "M"; it is headed: "Transfer of responsibility for design." When you were giving evidence you asked if you might be allowed to say something more about that.

Dr. Addison: Yes. The point there was, you see, that when we started, the design department was in a compartment under the War Office—the M.G.O.—and then testing was at Woolwich. At first inspection was not under our control. We found ourselves confronted with the necessity, quite properly, of delivering goods that would pass test. The result was that inspection and test were inseparably associated with the supply of proper goods, so that they had to be taken over. As it developed, all manner of modifications of design were called for, partly because we wanted new things and partly because we wanted to save money. It will be within your recollection that at one stage of the war there were a lot of what we called "dad" shells. That was because the particular fuses at that time adopted were not satisfactory. It was no good going on manufacturing those fuses if they did not work when they were produced; so that design was brought over, too, not from any mere greed to have hold of it, but because it was necessary to have that associated with manufacture. In the same way the

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[Continued.]

demand, for example, for copper, was very urgent—in copper bands, an enormous tonnage of copper was used—and it was imperative that, if possible, some of it should be saved. That was another reason; so that design, inspection and testing, and so on, are, I suggest, inseparably associated with supply, and it is a mistake to have them in separate departments. Just as a private firm has that all under their own head when they are making the things, so must a state department. I asked to be allowed to supplement thus what I had said because I thought that the text of Exhibit "M" did not, perhaps, sufficiently indicate the sort of sequence of events which led to that being brought about.

1028. *Professor Gutteridge*: When you were dealing with paragraph 73 in your opening speech you indicated, I think, that you wished to say something as to what was meant by an adequate reserve?

Dr. Addison: The amount of reserves that you would require would depend upon the difficulties in replacing or increasing your supplies. Take, for example, a rifle; you may take it that a new factory for producing rifles to augment your supplies takes 18 months from the time you decide to put it up to the time you get the first rifle. That is putting it roughly. That is to say, with a thing that takes a long time in augmenting supplies you would therefore have to have a bigger reserve. If you have a thing which you can produce quite rapidly, say, in three months, then you would not need to have so big a reserve. That was what I meant.

1029. *Professor Gutteridge*: There is no mathematical calculation which you can apply?

Dr. Addison: No. It must depend upon the commodity as to the months of reserve you ought to have; and the really critical element in the calculation is as to how quickly you can replace it.

1030. *Professor Gutteridge*: Then there was the question of sub-contracting; but Sir Philip asked you about that, so I do not think we need go into it again. Then there is another note I have here which relates to reserves of certain specialised types of machinery. I suppose you are referring there to machinery and machine tools, are you not?

Dr. Addison: Yes, I am. As you are aware, some are of a very highly technical character, and you would have to have a reserve of machines.

1031. *Professor Gutteridge*: That would apply also to gauges and jigs?

Dr. Addison: Yes.

1032. *Professor Gutteridge*: And specifications, drawings, and so on?

Dr. Addison: You would have to have them in any case.

Professor Gutteridge: Yes.

1033. *Sir Philip Gibbs*: I rather wanted to ask you one question relating to a case you gave in which you said that, in your opinion, there would be opposition by the services to national manufacture.

Dr. Addison: Certain sections of the services.

1034. *Sir Philip Gibbs*: Why do you think there would be opposition?

Dr. Addison: Only tradition. I am sorry to say it, but I think that tradition is very strong in the services. It is not to manufacturing as a manufacturing proposition, because they have no knowledge or experience of it. It is just tradition, and it is very strong, and we had (I am speaking with great respect to these gentlemen) to overcome their traditions. Their traditions are strong like other people's are, and there is a certain section—say the specialised artilleryman—who is always accustomed to deal from one year to another or from one month to another with representatives of certain firms, and so forth. He gets habituated to that sort of thing, and tradition is very strong indeed in—shall we say—the specialised branches of the services; not so much in the others. I think you would have difficulty with it, but I always myself found, whether he is a soldier or a civil servant, if the state says he is to work a certain system he will do it, *con amore*. The difficulty would not last long.

1035. *Chairman*: One general question; I do not know whether you can answer it "Yes" or "No," but the question is this: If the control organisation of the Ministry of Munitions in its completed form had been in operation in the early part of 1914, would not nearly all the difficulties enumerated in your statement have been either entirely avoided or greatly reduced?

Dr. Addison: Certainly they would have been greatly reduced, and it would have saved tens of thousands of lives.

1036. *Chairman*: Yes; but I mean supposing the organisations were set up to-day.

Dr. Addison: With the factories?

1037. *Chairman*: Yes. The organisation set up to-day all ready to be put into operation immediately the emergency arose, a great many of the difficulties which you experienced in 1914, 1915 and 1916 would never arise?

Dr. Addison: Yes, that is true; if you included in the term "organisation" the body of men with experience who are actually doing things, that is so, certainly.

1038. *Chairman*: Unless there is anything you wanted to add, or which anyone else wants to ask you, I think I may say on our behalf that we thank you very much.

Dr. Addison: Thank you.

(Adjourned till Wednesday, July 17th.)

APPENDIX

STATEMENT OF EVIDENCE SUBMITTED BY THE RIGHT HON. CHRISTOPHER ADDISON, P.C., M.D., F.R.C.S., M.P.

1. My evidence is derived from my experience at the Ministry of Munitions, of which I became the Under-Secretary upon the constitution of the Ministry. I was informally appointed on the 26th May, 1915, the Ministry being constituted by an Act of Parliament that received the Royal Assent on the 9th June, 1915. I remained the Parliamentary Under-Secretary under Mr. Lloyd George until July, 1916, and under Mr. Montagu until December, 1916, when I became the Minister of Munitions, an office which I held until July, 1917. I then became the Minister of Reconstruction.

2. In order to explain the position as I found it, when the Ministry of Munitions was constituted, I must first refer briefly to some earlier developments.

Soon after the outbreak of war it was clear that the existing system of munitions production was inadequate. It had either to be supplemented or expanded. As early as October, 1914, it was suggested that it should be supplemented by co-operative production on the lines successfully adopted in France. At that time, however, the opinion of the military authorities and of "their expert advisers, the armament firms" * was adverse to such a course. They preferred to expand the existing system by the employment of new sub-contractors from the general engineering industry, to whom the armament firms could pass on such work as, while their own new factories were building, they could not themselves absorb. The armament firms were to draw additional skilled labour from other engineering firms, not engaged on direct contracts for War Office work.

3. Early in 1915 the difficulties of such expansion were becoming apparent. Firms were reluctant to transfer labour to the armament makers, believing that they squeezed their sub-contractors and had already, by the high wages which their large profits enabled them to offer, deprived the outside engineering industry of many of its skilled men. In consequence there was a demand for direct contracts for such work as the outside industry could undertake, in place of sub-contracts from the armament firms. That demand was supported by the Board of Trade.

4. After many negotiations and inquiries a co-operative group was started in Leicester in March, 1915, and it was suggested that co-operative production—various firms undertaking various processes—might be applied in areas outside a 20-mile

radius from existing government factories or recognised armament works. Within that radius skilled labour was to be transferred to the existing armament makers. By the end of April the distinction between areas within and without such a radius had broken down. Instead there were set up local munitions committees, which were to concentrate the resources of the area in national shell factories to be staffed and equipped by the local firms and operated by management committees. Co-operation by groups of independent employers remained as a supplementary alternative.

Deliveries from national shell factories and co-operative groups did not begin until the end of August, 1915, and accordingly, before I came to them, I will describe the position as I found it, when the Ministry of Munitions was first constituted.

5. My first duty as Under-Secretary was to participate in an investigation of the position as regards the demand for munitions, the orders given and the deliveries made. I propose to summarise the results of these inquiries as regards guns, shells, machine guns and rifles.

6. As regards guns and shells, the problems facing the Ministry are indicated by the following quotation from a report on its work, compiled in November, 1915:—

"At its formation, the Ministry was faced with four main tasks—

(1) It was urgently necessary to hasten and expedite delivery on existing contracts for guns and ammunition.

(2) The orders already placed had to be supplemented, not merely by additional orders of guns and shells, but, what was also of great importance, by further orders for various components, such as fuses, primers, gaines, etc.

(3) The existing capacity for the filling or loading of shell and components was inadequate to deal with the orders already placed—far less to handle the further output—and measures had to be taken on a far more comprehensive scale than had up to that time been contemplated.

(4) The Ministry had to undertake an enormous new programme of heavy guns and of the corresponding ammunition."

The position as regards deliveries due on existing contracts for guns and ammunition (principal types) was as follows on the 1st June, 1915:—

* History Min. Mun. Vol. I, Part III, p. 2.

Type.	Gun.		H.E. shell (thousands).		Shrapnell shell (thousands).	
	Promised.	Delivered.	Promised.	Delivered.	Promised.	Delivered.
18 pdr. ...	744	604	818·6†	18·4†	3,223·5†	1,192·2†
60 pdr. ...	68	19	114·6	35·1	95	42·4
4·5" how. ...	426	122	330·8	54	178·2	45
6" how. ...	—	—	131·9	8·8	8·3	—
8" how. ...	24	24	9·9	·1	—	—
9·2" how. ...	16	16	34	8·9	—	—
12" how. ...	15	1	7·5	—	—	—

† Including both shells and complete rounds.

The total deliveries of shells by contractors amounted to 1,526,400 against promises, due for delivery by the same date, of 5,723,900. The average arrears were 65·8 per cent. of promises in the case of shrapnel and no less than 91·5 per cent. in the case of high explosive. To the above figures may be added promises of 292,100 shells of various types from government ordnance factories, which had been more than fulfilled by deliveries of 308,000.

7. The above figures include a few orders placed abroad, of which the largest was with the Canadian Government. Those orders were placed by the War Office in order to meet the failure of British contractors to deliver. The position of the chief British contractors at the end of May, 1915, as regards promises, deliveries and arrears of all types of shells, is shown in Exhibit A.

8. Of machine-guns, 2,482 has been promised for delivery by the 1st June, 1915, 1,115 of which had been delivered. The proportion of arrears in the case of rifles was lower, some 308,000 having been delivered—nearly 50,000 short of the promised quantity. The difficulty, however, was that, with the manufacturing capacity as it was, even on the orders given not more than a million might be expected by March, 1916, and, with reasonable allowances for arrears and defects, the provision for the new armies would be hopelessly insufficient.

9. The position summarised above was obviously critical and dangerous. Existing arrangements had proved quite inadequate to meet the demands of the first ten months of the war. There was a most alarming deficiency of high explosive shells, and the troops in France had to be rationed to scanty and most inadequate allowances. Moreover, with the increasing intensity of trench warfare and the arrival of the new armies in the field, the need for shells and other munitions was bound to increase very greatly.

10. Before examining the reasons for these deficiencies and the steps that were taken to overcome them, I should revert to the local organisations, mentioned in paragraph 4 above, and to what was learnt as to the costs involved in the system then being adopted. Under the general direction of the late Lord Stevenson the whole country was divided into engineering areas, and local boards of management constituted, including what had previously been arranged for.

The machinery and manufacturing capacity of all the firms in the different areas was investigated, and as rapidly as possible they were associated with the supply of such parts as they were appropriate for. In October/November, 1915, there were 30 national shell factories in operation and 26 co-operative groups. Every effort was made to simplify specifications and drawings for inexperienced manufacturers, and to simplify patterns in order to eliminate unnecessary processes, but much delay was occasioned by a shortage of precise drawings, specifications, gauges, etc. Nevertheless, although deliveries had only begun at the end of August, the output of 18 pdr. H.E. shell from these sources in October exceeded the total deliveries from all sources (home and foreign) during the month of June.

11. The above-mentioned organisations were mainly directed to the supply of shells, but there was also required a concurrent supply of components, such as fuses and primers and the spread of the manufacture of such parts had to be arranged for. Above all, adequate arrangements for filling and assembling the completed shells were urgently required. The War Office had already begun to erect new factories outside Woolwich for the latter purpose. In addition to these, 15 other factories and five munition stores were started and provided by the autumn of 1915, and the whole task of allocating components was organised, so as to prevent congestion or delay. At the same time the Ministry took over the Ordnance Factories at Woolwich, Enfield and Waltham. In connection with these extensions, a scientific system of central control of stores served to promote the flow of shell and components for

completed ammunition, while inspection was de-centralised and the staff of inspectors was increased so as to avoid unnecessary transportation of shells, components and explosives.

12. The need for heavy ammunition was particularly urgent. To meet it, the Ministry, with the assistance of an expert in factory construction, set up national projectile factories, which were arranged to be worked under the direction of existing firms. By November, 1915, 11 of these were already approaching the stage of production. I shall have occasion to refer again to their work.

13. By the end of 1915 the above developments were beginning to have effect. The prospect of great increases in the volume of supplies and the establishment of new factories called for proper control of expenditure, and in August, 1915, a branch of the Ministry was instituted to deal with cost accounting. In October, 1915, I appointed Mr. Lever, the distinguished accountant, to take charge of this branch. He became the head of the Financial Department of the Ministry, and was made responsible to me for examining and sanctioning all important contracts. As a result of his investigations and of the information made available by the construction and operation of national factories, large contracts were placed during December with local organisations at prices considerably lower than those charged by the armament firms.

The experience obtained between August and October showed that the costs of manufacture, including generous allowance for amortization would enable us to obtain supplies from the national factories at much lower prices than had hitherto been paid, and that great economies were obtainable through the organised supply of materials and through the establishment of a proper costings system. Accordingly negotiations were begun with the armament firms.* I suggest that the need for such negotiations, their course and their results, throw considerable light on the questions with which the present Commission are concerned.

14. The subject of the first negotiations concerned the price of shells. The position in January, 1916, is conveniently summarised in the report (appended hereto as Exhibit C) by a committee of Mr. Lever and his colleagues, meeting on the 24th of that month.

As a result of this report, on the 31st January, I took the chair at a meeting of representatives of the Ministry, of the five armament firms mentioned in para. 2 of Exhibit C, and of Messrs. Cammell Laird. At that meeting I stated the prices which the Ministry were prepared to pay for deliveries up to the end of June—which prices were based upon a careful ascertainment of costs at our factories with an adequate allowance for profits and for sinking fund. The minutes of the meeting and the prices so offered are appended hereto as Exhibit D. The meeting was adjourned until 3rd February, when the firms submitted counter-offers, which were accepted in the case of all shells except those for 18 pdr. guns and 4·5 inch howitzers. In those cases, with two or three particular exceptions reserved for further discussion, it was agreed that manufacture should proceed provisionally on the basis of the prices proposed by the Ministry, but that if it could be shown by a friendly comparison of costs, that the cost of manufacture, allowing for a fair profit, was greater than that allowed for in the Ministry's prices, the Ministry should, if necessary, pay the increased price up to, but not exceeding, the amount of the reduced offer by the firms. None of the armament firms in fact availed themselves of this proviso

* There had already been difficulties with them as regards contracts, and although it would be out of place to discuss such difficulties in detail, I append hereto (Exhibit B) a letter from one of them, dated the 30th November, 1915, as an instance of the type of difficulties which had arisen. It will be noticed that the firm in question asserted a right to supply 18 pdr. H.E. shell on existing contracts, which were at the price of 20s. "for a period of not less than the duration of the war."

and the prices proposed by the Ministry were accepted.

15. The course and effect of the above negotiations is summarised in the following Table:—

	Original prices		Prices proposed by Ministry.	New prices offered by Armament Firms.	General average reduction per shell.	Programme of weekly production of shells.	Weekly saving by reduction.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		£
<i>H.E.</i>							
12" ...	22 10 0	to 25 0 0	20 5 0	21 2 0	2 13 0	1,600	4,240
9-2" ...	13 2 6	to 14 15 0	10 10 0	11 7 6	2 11 3	11,400	29,212
8" ...	9 3 4	to 10 0 0	7 15 0	7 17 6	1 14 2	17,000	29,041
6" ...	4 0 0	to 4 10 0	3 7 6	3 10 0	15 0	57,000	42,750
60 pdr. ...	3 0 0	to 4 2 4	2 9 6	2 12 6	18 8	34,000	31,733
4-5" ...	2 7 0	to 3 5 0	1 13 6	1 19 6	1 2 6*	110,000	123,750
18 pdr. ...	1 0 0	to 1 3 0	12 6	14 8	9 0*	260,000	117,000
<i>Shrapnel.</i>							
60 pdr. ...	3 0 0	to 3 15 0	2 15 0	2 17 6	10 0	46,000	23,000
18 pdr. ...	17 6 to	1 0 0	18 9	18 9			
							£400,720†

* In these cases the prices proposed by the Ministry were accepted.

† This estimated saving is based on the general average reduction. A much greater saving was actually realised with the subsequent increase in output.

Costs of material and labour had risen substantially since the prices then being paid had been fixed. The reduction in the firms' own offers was, therefore, all the more striking, and it should also be noted that although substantial increases in wage rates occurred, later in the War, it was not found necessary to increase the prices paid for shells.

16. Similar negotiations took place as regards the price of cordite. The Finance Department of the Ministry suggested that cordite contractors should be asked to disclose their costs of production of cordite before prices were fixed for supplies in 1916, as it was strongly suspected that the existing prices were excessive. Accordingly, on the 1st February, 1916, they were asked to render returns as to their costs of production and as to the capital employed. Excuses were made and no returns were in fact received. Nobel's Explosives, one of the principal contracting firms, then asked whether the matter could be settled by a reduction in price. Their basis price at the time was 2s. 3d. per lb., and in reply to an offer of a lower price they submitted a statement showing a total cost of about 1s. 11½d. and a profit of 3½d. per lb. The Ministry, however, could not agree to their figures and an appointment was made for accountants to examine their books. They then asked to re-open negotiations, and after a number of meetings they accepted a basis price of 1s. 8d. per lb., the Ministry undertaking the risk of explosion, for which insurance had recently been offered and refused by Nobels at a premium equivalent to ½d. per lb. Aircraft and bombardment risks were also accepted, but were insurable at rates which, including the risk of explosion, amounted to less than ½d. per lb. The reductions in prices effected by these negotiations amounted on an average to 7½d. per lb. or, on the total production estimated for the latter part of 1916, including the contracts both of the Ministry and of the Admiralty, a total saving of nearly £4 million annually. The detailed figures are shown in a statement appended hereto as Exhibit E.

17. I give the above instances as conspicuous cases, in which the investigation of costs and the information made available by the operation of national factories enabled the Ministry to effect very large reductions in the prices paid to contractors and showed that those prices had originally been grossly excessive. The investigation of costs met with considerable resistance from contractors, and I append, as Exhibit F, a circular sent out to all members of district associations of controlled firms as late as the 15th August, 1916. But the reduction in prices continued, and, although I do not want to take up the time of this Commission with any detailed examination of later periods in the War, I append a short table showing some contract prices about a year

later, compared with those fixed early in 1916, to which I have referred in paragraph 15 above. The prices in March, 1917, provided for a recent rise in wages of 5s. per week, and notwithstanding that provision represented a saving of some £500,000 a year, as compared with those of February, 1916.

Armament firms' contract prices for principal natures of H.E. shell.

	Early contracts.	Feb. 1916.	March 1917.
18 pdr.	20s. to 23s.	12s. 6d.	12s. 6d.
4-5"	47s. to 65s.	33s. 6d.	27s. 10d.
60 pdr.	60s. to 82s. 4d.	52s. 6d.	42s.
6"	80s. to 90s.	70s.	61s. 6d.
8"	£9 3s. 4d. to £10 0s. 0d.	£7 17s. 6d.	£6 12s. 6d.
9-2"	£13 2s. 6d. to £14 15s. 0d.	£11 7s. 6d.	£9 7s. 6d.

18. The same processes as had been applied to the costs of shell cases yielded similar results when applied to other ingredients, and even to the minor details of filling processes where the contracts related to a price per hundred or per thousand as the case may be. For example, the saving in a large number of filling contracts for different parts to the first half dozen contractors on the output that was arranged for the first six months of 1917, showed that the price agreed upon as the result of investigation as compared with the prices originally arranged represented a saving with these six contractors alone of nearly £370,000 per annum.

19. By way of a similar comparison with the position about a year later as regards the national factories, mentioned in paragraphs 10 and 11 above, let me quote a statement supplied by the Finance Department of the Ministry in April, 1917.

"The capital expenditure on national factories for gun ammunition components amounts, at the present time, to £23,000,000. As a result of this expenditure, goods have been produced at a cost of £39,000,000 which, if they had been bought at contract prices, obtained after the application of the costing system, would have cost £42,000,000. A saving of approximately £9,000,000 had, therefore, already been effected by this means, and, if economy is secured in future on the same scale, the whole capital cost of the national factories will have been repaid in about eighteen months from the present date.

"It should be added that many of these factories have been in operation for a short time only, and, in the case of those which have been the longest in operation, namely, the factories for the manufacture of T.N.T., while the capital

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cost has been less than £1,500,000 goods have been produced at a cost of £3,500,000, which, at contract prices, would have involved an expenditure of £6,000,000. In the case of these factories, therefore, a saving very much in excess of the total cost of the factories has already been secured."

20. The factories included in the foregoing statement were 27 high explosive factories, 11 propellant explosive factories, 16 national projectile factories mainly for the larger shells, and 32 of the so-called national shell factories largely administered by the boards of management.

The time required, at the cost of production then being obtained, as compared with the contract prices obtainable before the full repayment of the capital expenses of all the factories would have been obtained, was 20 months from March, 1917, and it is certainly within the mark to say that the total capital cost of all these factories as represented in the diminished cost of production, notwithstanding the progressive rises in wages, had been repaid by the end of the War.

21. Before I leave the question of output from national factories, I should like to illustrate the part they played in the production of ammunition in later years of the War by the statistics appended as Exhibit G.

22. The last-mentioned statistics illustrate the rapid and enormous increase in the output of one very important class of munitions. I do not wish, however, to over-emphasise the distinction between trade production and production from national factories or through the groups organised under munition committees. The Munitions of War Act, 1915 (2nd July, 1915), empowered the Minister of Munitions to declare any establishment in which munitions work was carried on to be a "Controlled Establishment" and all, or virtually all, the firms responsible for the trade production shown in Exhibit G were so controlled. The control extended not merely to profit, wages and conditions of labour—the principal matters affected—but also to the "general ordering of the work in the establishment with a view to attaining and maintaining a proper standard of efficiency." In practice, however, the Minister did not take over the management or direction of the establishment, unless there were special reasons for doing so. I should add that the powers under the 1915 Act were enlarged by the Munitions of War (Amendment) Act, 1916 (27th January, 1916), and that, in particular, they were extended to require controlled establishments to give information as to their costs of production and the cost and source of the materials used.

At the same time, on the advice of those in charge of the Materials Supply Department of the Ministry, the extended powers were used to cover the total supply and distribution of an increasing number of metals and other materials in order to frustrate a disposition which we found to exist in some cases to hold back supplies for a rise in prices, as well as to secure an even distribution in order to meet the necessities of the case in accordance with a priority in the urgency of the demand.

23. Let me now turn to an examination of the difficulties that necessitated the concentration of production under the control of the Ministry. I submit that they indicate the need for national control on a similar scale in any emergency and that the extent to which their solution either involved national ownership or would have been facilitated by it has an important bearing on the questions before this Commission.

24. From the first days the Ministry was confronted by the failure of the specialist makers to obtain a sufficient augmentation of the skilled labour necessary for expansion of production by transference from other firms as had been hoped for from the arrangements devised before the formation of the Ministry and referred to in paragraph 4. In addition, many invaluable skilled workmen had been enlisted and sent abroad before the Ministry was constituted, and the process was continuing. A Labour

Supply Department of the Ministry was, therefore, rapidly constituted and efforts were made to secure the return from the army of "key" men who had already been enlisted (Release from the Colours). Apart from these efforts, which were only partly successful, it had to undertake three main functions: first, to prevent the enlistment so far as possible of essential skilled men; second, to secure as good a use as possible of the existing skilled labour; and, third, to augment the supply by training. Under the second of those heads fell, not only the transference of labour from one works to another so far as was practicable, but also the adaptation of forms of skilled labour, not previously employed on munitions, to munition making. The third head included the training of women for many tasks, for which skilled men had previously been considered indispensable.

25. I will deal with the above points in order, but summarily. The details will be of little interest to this Commission, but the general lesson I draw from these difficulties is that they were so grave as to tax the resources of the Ministry to the utmost, and that no private firm or combination of private firms could possibly have dealt with them.

26. As regards releases from the colours, the Ministry, acting in conjunction with the War Office, between July, 1915 and April, 1916, investigated over 40,000 individual applications for release and allowed some 15,700 of them. Further, in July and August, 1915, nearly 7,000 soldiers, whose trade qualification seemed to warrant investigation, were interviewed by skilled investigators: rather over 2,000 were released. In the autumn of the same year a four weeks' investigation by 25 representatives of the Minister (including 16 Members of Parliament) and 132 skilled investigators resulted in addressing over 1½ million soldiers, of whom rather over 100,000 volunteered for munitions work and were interviewed: about 40,000 were selected. In the spring of 1916 a deputation went to France and worked over the entire British Front. Some 17,000 soldiers representing the high types of skill required were interviewed and about 1,700 of them were finally selected. All those investigations involved nearly a quarter of a million interviews, at the rate of 750 a day. The comparatively small number of about 45,000 finally selected indicates both the care and skill applied in investigation and the impossibility of confiding such a task, involving, as it did, continuous co-operation with the War Office, to private industrialists, whether in competition or in combination. The 45,000 finally selected were drawn from over 4,000 different units of the Army, and distributed among nearly 4,000 employers.

27. The limitation of recruiting falls into three periods—those of voluntary enlistment, of the Derby attestation scheme and of compulsory service. During the first period war service badges were issued in certain scheduled trades and to the employees of certain scheduled contractors. From January to July, 1915, the issue was made by the War Office and the Admiralty and from July, 1915, by the Ministry of Munitions. The war service badge was a temporary device and there were many anomalies in its issue: but it served the immediate purpose of checking the enlistment of munition workers, whose labour was essential for the production of armaments. Under the Derby attestation scheme the issue of badges was not suspended, but was supplemented by the "starring" of more than 1½ million men of military age—almost 30 per cent. of the men of military age, who had attested. Of the starred men, rather more than half were munition workers, while the remainder consisted of miners, agricultural workers and railwaymen. In November, 1915, the enlistment of badged and starred munition workers was prohibited, and a few of those who had been wrongfully enlisted were released at the instance of their employers. Under the Military Services Acts of 1916, badged and starred men were to be exempted, and from this time onwards to the termination of the War the position became increasingly difficult. It is not, however, necessary for the

present purpose to describe the various expedients that were adopted and the anxieties and troubles that were inseparable therefrom. They were issues which in any case could only have been dealt with under state authority.

28. The proper utilisation of the available skilled labour involved questions of transfer from one firm to another. It was necessary whenever possible to ration out skilled workmen among all the firms engaged directly or as sub-contractors in the production of munitions. With the extension of munitions work to firms whose business had previously been unconnected with it, and the increasing scope of the work recognised to be of vital importance in the War, the demand for skilled labour became more insistent and more widespread. The gaps left in those works from which transfers were made, or existing in others, where only a skeleton of skilled labour could be supplied had to be filled by mechanisation and by "dilution". The machines had to be as simple as possible, intended for the particular work in hand. They were designed for mass production. They were to be operated by the unskilled labour, which, untrained or partly untrained, was collected from all sources to dilute the insufficient supply of skilled men.

29. An attempt was made to allocate the supply of skilled labour by the institution of a scheme of War Munitions Volunteers. It was begun in the late summer of 1915 and subsequently in response to an ambitious programme of publicity some 120,000 men had enrolled themselves as ready to be transferred for munitions work to any controlled establishment. It was found, however, that the larger part of these volunteers were already engaged on war work or on work such as the railways and mines, from which it was inexpedient in the national interest to remove them. Moreover, the protests from employers, when the men enrolled or were ordered to transfer, were numerous and forcible; nor were the proposed new employers always willing to accept volunteers—to whom they might have to pay higher wages, if they came from a highly rated district, and a subsistence allowance—for, although that additional payment was recoverable from the State, they feared discontent and trouble among other workmen. In the result only some 13,500 volunteers had been transferred by August, 1916, and at that time further enrolments and transfers were both proceeding at the rate of 300 or 400 a week. The difficulties experienced in carrying through such a scheme even on the authority of the State and under a great patriotic impulse are sufficient to explain not only the early failure, but the impossibility of its being done by private firms.

30. The difficulties and disputes arising out of the dilution of labour during the War were so notorious that I confine myself to pointing out that the questions of principle, sentiment and interest involved could not conceivably have been faced, let alone settled, by any authority other than the Government of the country. If those questions had been left for settlement by private employers, with or without support from the Government, the resulting friction and disturbances would not merely have hindered the output of munitions, but would have made it quite impossible to carry on the War at all.

31. As regards increasing the supply of skilled labour of a critical or "key" type, I can best illustrate my point by one or two instances (which may be taken as typical):—

(a) Gauges are essential for the manufacture as well as for the subsequent inspection of the various parts of shells, fuses, guns and all other munitions. Workmen accustomed to precision work—for the order of accuracy required might well amount to a thousandth or a ten-thousandth of an inch—could be adapted and trained as gauge-makers, but the supply of men already accustomed to gauge-making was dangerously small, and quite insufficient for what was required by the increasing output of

munitions. As a result of the examination of the possibilities of various undertakings such as the Perforated Music Co., Waterlow & Sons (printers), the L.C.C. Tramways, R. Hoe & Co. (printing machinery), various telegraph and telephone companies, J. W. Benson Ltd. (watch-makers), and even the Metropolitan Water Board were given orders for gauges for shell fuses and the like, and by August, 1916, 130 jewellers—to take one trade alone—had already been trained and placed as gauge-makers.

(b) By the same date nearly 200 plumbers had been trained as lead-burners for the explosive factories and 500 other men as tool-setters on one special type of machine.

(c) Before the War 90 per cent. of the optical glass used in the country was imported from the continent, some 60 per cent. coming from Germany. The making of lenses and prisms was supposed to be highly skilled work, requiring two or three years' training. Under the optical munitions department of the Ministry, special machines were introduced and women were trained at the Optical Munitions School in working them. By the beginning of 1918 one-third of the 1,720 optical glass-workers in the country were women, and by the end of the War the proportion had increased to 50 per cent.

32. The Commission will appreciate that just as the supply, allocation and use of labour are essential to the production of munitions, so is the supply of materials and machinery.

33. The issues that arose with regard to the supply and control of materials may be indicated under three heads. In the first place come such obvious bulk materials as steel and other metals, the ingredients of explosives and other chemicals. In the second place come materials essential, but required in smaller quantities and often from limited sources, either of importation or manufacture. In the third place come those materials, which in production are so associated with the materials actually required for munitions that the control of the latter, in order to secure an adequate supply, involves the control of the former, sometimes for the complementary purpose of restriction.

34. The position with regard to materials supply may be illustrated by taking the examples of steel, aluminium and sulphuric acids with other illustrations of materials, the requirements of which had far-reaching indirect results.

Steel as a bulky material wanted in enormous quantities, making great demands upon shipping and of which the supply and distribution could only be dealt with by a central organisation.

Aluminium as a metal difficult to obtain in adequate quantities, and which was required for a great variety of manufactures presenting variations in regard to urgency.

Sulphuric Acid as a commodity required for a great variety of purposes, and in which the character of the War demand involved not only a great increase in supply but a difference in the form of manufacture of a substantial proportion of it as compared with peace-time requirements.

35. In the case of Steel at an early stage the Ministry had to assume complete control not only of all supplies available for home manufacture but of such contributions as we could make to the needs of our Allies. This involved control of pig iron, as material for the steel-makers. We controlled the output at home through controlled establishments and the imports from abroad. The annual output of pig iron remained throughout the War at about 9 million tons, and the imports at between 6 and 7 million tons. The output of all types of steel ingots and castings rose gradually from rather over 7½ million tons in 1914 to some 9 million tons in 1916 and over 9½ million tons in 1917 and 1918. Of this amount shell steel accounted for about 1½ million tons. There were limits to the home production of the latter and imports rose from between 280 and 290 thousand tons in 1916 to nearly 1½ million tons in

1917 and rather less in proportion during the first three-quarters of 1918. It is sufficient to point out that the problems of labour and transport at home and overseas, presented by the above quantities would have been completely beyond the competence of any other authority than the Government.

36. *Aluminium* was needed for a variety of purposes—in fuses, high explosives (ammonal), hand grenades, motor transport, aviation, water bottles and incendiary bombs (thermit). Of the world output of 78,700 tons in 1913 about 10,000 tons came from the United Kingdom. The estimated requirements for munitions purposes in July, 1915, were nearly 20,000 tons a year, of which over 16,000 were required for explosives. They were met partly by increasing the annual United Kingdom output to about 11,000 tons, partly by taking 7,500 tons from Canada, partly by purchases from other producers in the U.S.A. or elsewhere. By November, 1916, the Allies required nearly 60 per cent. of the world output, including enemy countries which sold their supplies to Germany. Prices of ingot had risen from £81 per ton in January, 1915, to about £300 per ton. These conditions led to a complete system of purchase of all supplies, and as the aluminium demand for aeroplanes and airships increased, an increasingly strict rationing system became necessary.

37. *Sulphuric Acid* was required in great quantities in a concentrated form (oleum) for the manufacture of explosives. The bulk of the acid in peacetime is required in a dilute form for a great variety of purposes, including for instance the production of super-phosphates, various other chemicals, bleaching powder, dyes, tar, etc. By May, 1916, the annual production of weak sulphuric acid had risen from 1,680 thousand tons pre-war to 1,870 thousand tons. For explosive purposes, however, the weak acid is concentrated and the average yearly production of some 60,000 tons of concentrated acid (oleum) before the war had been increased nearly sevenfold. Construction work on an unprecedented scale provided an increase of nearly 400,000 tons of oleum a year. The alternative to that construction work would have been some form of general requisition, involving the destruction of numerous trades and even then the supplies would have been utterly insufficient. As it was the Ministry was able to leave a substantial surplus of the output of acid for essential trade purposes and to provide, in other cases, a substitute in the form of nitre cake, a waste product from the manufacture of nitric acid, another important ingredient in explosives. The substituted use of nitre cake involved experiments on an industrial scale, publicity for their results and the collection, storage, transport and distribution of the nitre cake. All those tasks were undertaken and performed by the Ministry. In addition economies in the use of sulphuric acid were effected by manufacturing another essential, ammonium nitrate, from ammonia liquor instead of from ammonium sulphate. This is an instance in which the full resources of the Ministry were successfully used both to ensure a sufficient supply of essential material and to prevent such a wholesale dislocation of other essential trades as would have resulted from a shortage.

38. I should like to refer to the effect of the above-mentioned steps on cost. Before the War oleum cost 85s. a ton. As early as May, 1916, it was produced in national works at about 55s. a ton, and some 2,050 tons were so produced weekly from sulphur alone. At that time some orders had been placed in the U.S.A. at an average price of £12 a ton, while the ordinary market price exceeded £80 a ton. As compared with the lower U.S.A. price, the saving on 2,050 tons a week, represented by national production instead of by U.S.A. purchases, amounted to £976,050 a year. The national works in question represented a capital outlay of £750,000.

39. As instances of materials, the control of which involved the control of other substances associated with them in production but not themselves required for munitions, I may refer shortly to glycerine and alcohol, both essential in the production of explosives.

Glycerine is separated out of palm kernels, cotton-seed, soya beans, coconuts, etc., in the manufacture of soap, margarine or cotton-cake. It is a by-product of those trades, and in order to secure a sufficient supply the Ministry was obliged to make arrangements with the manufacturers concerned or to control the trade. As regards soap, for instance, the Ministry, soon after its formation, bought all the output of glycerine for the duration of the war at £45 per ton. The market price was then about £40 per ton, but it rose rapidly in the open market—in the U.S.A. for instance—to far higher figures. The first result was an increase in the retail price of soap, margarine, etc., in the United Kingdom, in order that the manufacturers, having to pay more for their palm kernels, etc., might make out of their other products the profits they were unable to take out of glycerine. Later on attempts were made by the larger concerns to undercut their smaller competitors in regard to soap prices, with a view apparently to bringing them into the combine. The smaller competitors, also producers of glycerine, complained loudly, and finally the Ministry was obliged to fix the prices for soap.

40. Another instance was *alcohol*. In order to secure supplies of that product, the Ministry were compelled to take over and control the whole distillery trade. There were some curious results. Maize, for instance, is the raw material both for alcohol and for yeast. It is a bulky cargo, and the Ministry, in order to make full use of shipping space, limited imports of maize to secure the necessary supply of alcohol and no more. The result was a shortage of yeast. The Ministry tried to secure economies in the use of yeast, which brought down on my head the indignant protest of housewives in the North and in Scotland, who habitually bake their own bread and consume, in doing so, a greater proportion of yeast than does a commercial bakery. In consequence the Ministry had to control yeast, and to ensure a sufficient supply to the complaining housewives and others. It provides an interesting illustration of the extent to which the control of munitions may have to go.

41. Finally, as regards the control of materials, I append hereto, as Exhibit H, a summary report on the position of materials for explosives, made in July, 1915, as illustrating the early necessity for central control in order to secure both a necessary plan of production as well as a distribution of supplies in accordance with need.

42. I now turn from labour and materials to the third side of production—the machinery used for the conversion of materials to munitions. I will take first, as an instance, the question of machine tools.

43. *Machine tools* are power-driven machines for cutting, working or abrading metal. They include lathes and machines for milling, planing, grinding, etc. They are indispensable for the production on any large scale, not only of shells, but also of guns, rifles and other munitions.

At the outbreak of War the manufacturing industry in Great Britain worked principally to produce in small quantities such particular and different machines as were required by its customers. Under the pressure of American competition there was a growing tendency to some measure of specialisation. With home production and with imports from America, principally of the lighter machines, the industry was able to satisfy normal demands in peace time, but quite unable to cope with war-time requirements.

44. In those circumstances the essential tasks of the Ministry were to increase the supply of machine tools by manufacture and by importation and to allocate that supply as and where required. On the one hand, existing facilities for manufacture were insufficient and had to be supplemented, design had to be adapted to the simplest forms appropriate for the purpose in hand, and manufacture had to be concentrated on standard patterns, restricting the production of any single works to one or at any rate a few types of tool. On the other, full use had to be

made of all machine tools available, so that they should be used on Government work, and used continuously and where they were needed.

45. A Machine Tool Department was set up under the War Office in April, 1915, and transferred to the Ministry of Munitions in June, 1915, and there systematically organised, with the assistance of a Machine Tools Advisory Committee, consisting of representatives of the trade. The late Sir Alfred Herbert, a leading manufacturer, was in charge of the department from the time of its formation and he served as chairman of the Advisory Committee. As early as March, 1915, it had appeared that only about 50 per cent. of the trade were then engaged on Government work. Others were working on neutral orders and there was evidence that many such orders were destined for enemy use*. Steps were taken to control the trade and to give priority to Government orders; but until July, 1915, the control was general and dependent in practice on the goodwill of the individual manufacturer. In July control was made effective by requiring the sanction of the Ministry (Machine Tool Department) for all machine tool orders. I append as Exhibit I, the circular letter then sent to all members of the trade; it summarises the earlier history of control and states the reason for, and the means of, its extension. The sanction so required for orders was the foundation of the comprehensive plans upon which the Ministry found it necessary to embark. It also served for the control of prices—an imperative need, in view of the shortage of supply.

46. A census of machine tools and numerous visits from officials of the Ministry combined to show, among other matters, that in the spring and early summer of 1915, there were many machine tools usable for the production of munitions which were either not in use or not used to their full capacity. They were moved to other works, where they were needed, or orders were placed to ensure their full use. In fact the whole distribution of machine tools throughout the country was surveyed and re-organised so as to meet the requirements of munitions production, including the important matter of the equipment of the National Projectile and National Shell Factories. I can best illustrate the scope of the Ministry's work in this connection by referring to a document appended hereto as Exhibit J. It is a report made in April, 1916, upon a proposal to institute central purchase of machine tools for National Shell Factories. The writer, reviewing the activities of the Machine Tool Department, concludes rightly that the desired "central purchase" already exists.

47. But the due allocation of existing machine tools was not enough. On an average, in July, 1915, machine tool manufacturers were booked up for the next six months. To meet the deficiency, they were encouraged to place sub-contracts with general engineering firms and with such allied industries as printing machinery manufacturers. This involved simplification of design and considerable care in seeing that the tools ordered and used were not unnecessarily elaborate for the work required. In addition, orders to the amount of £1,000,000 were placed in America and a permit system for imports was used to complete the control of prices. An inevitable result of the sub-contracting system was the inferiority of many of the machines produced, but this defect was largely remedied by time and experience.

I may again point out that the control of the machine tool trade, as regards supply, allocation and use of tools, could only have been effected by the centralised authority of a Government Department, knowing the requirements of production and in a position to survey the trade as a whole and to deal with it accordingly.

48. In order to describe and illustrate the scope of the work of the Ministry, I have had to give the Commission a number of more or less detailed instances and some statistics relating to particular

cases. They are, of course, merely instances and I find difficulty in conveying, within a limited space, the impression of comprehensiveness and the wide field and variety of the essential work of the Ministry—matters clear enough in my own recollection and, I am sure, in that of my colleagues at the time, but difficult to convey within the limits of reasonable space. I think I can best supplement my detailed evidence by appending hereto two documents.

The first (Exhibit K) consists of extracts from a report prepared in the Ministry for the Chancellor of Exchequer, who required, for his budget speech in April, 1917, illustrations of the economies effected by the Ministry. The report accordingly bears on the question of economy.

The second document (Exhibit L) consists of the minutes of a typical fortnightly meeting between the heads of the Departments of the Ministry and myself. These meetings were held regularly, beginning in the autumn of 1916. The one exhibited was on the 1st January, 1917, and the variety of subjects, the methods of dealing with them and, if I may say so, the concise competence of the heads of Departments illustrate vividly what the Ministry had to do and how it was doing it.

49. In connection with the supply of skilled labour, I have already (paragraphs 24-27) mentioned the relations of the Ministry to the War Office. I should also refer to those relations from three other points of view, namely as regards the gradual transference of functions from the War Office to the Ministry so far as they related to the production of munitions, the relations between the design and the supply of munitions, and the need for unity in production. I shall also have occasion to refer as regards these matters to the Admiralty and the Air Board. The questions I propose to discuss will lead up conveniently to the constructive suggestions, based on my experience at the Ministry.

50. The transference of functions from the War Office to the Ministry may be divided into stages.

(1) When the Ministry was first constituted in June, 1915, there were transferred to it from the War Office the following:—

(a) The contracts and labour branches of the Master-General of the Ordnance's Department.

(b) The Explosives Department.

(c) The staff responsible for the inspection of munitions, including the inspection of naval ordnance stores.

(d) Not the administration of the Ordnance Factories, but the assistance of their staff in the work of the Ministry.

(e) Responsibility for trench warfare appliances.

The design, specifications and tests required for munitions were to be dealt with by the War Office and Admiralty respectively.

(2) The next stage was the transfer in August, 1915, of full responsibility for the ordnance factories, which consisted of Woolwich Arsenal, Enfield Small Arms Factory and Waltham Powder Factory. Arrangements were made for keeping direct contact between the factories and the War Office and Admiralty on technical matters.

(3) In August, 1915, the Munitions Inventions Branch was set up in the Ministry and such functions as the War Office had exercised with regard to inventions were transferred to it, it being recognised that final decisions as to whether any particular invention was of practical service and should be adopted and, if so, in what design, lay with the War Office.

(4) In November, 1915, the responsibility for design was transferred to the Ministry. I append hereto as Exhibit M a memorandum and further notes, which I prepared on this occasion. There was a difference of opinion between the War Office and the Ministry as to whether final approval of new designs should be given by the Ministry with or without the concurrence of the War Office in every

* History Min. Mun. Vol. VIII, Part III, page 47.

case. The question was settled by the following decision of the War Council on the 27th January, 1916:—

(a) The responsibility for designs, patterns and specifications, and for testing arms and ammunition rests with the Ministry of Munitions.

(b) The Army Council is responsible for the general nature and amount of the weapons and equipment required.

(c) When it is necessary that new weapons, stores, or articles of equipment should undergo practical trials by troops either at home or in the Field the co-operation of the Army Council should be sought by the Ministry.

(d) The Army Council should be represented on advisory committees or bodies under the Ministry of Munitions to the extent that they think desirable.

(5) In January, 1916, the Ministry took over the responsibilities for all storage until the delivery of the completed shells to the Ordnance Department of the War Office as required.

51. It will be seen that the stages of the transfer represent two developments, the extension of the control of the Ministry to the Ordnance Factories, which had originally been left under the War Office, and the extension of the scope of control to design and inventions. As regards the *relations between design and supply*, I cannot do better than refer to the documents mentioned above as Exhibit M. They state and illustrate the need for one control, since design and its attendant specifications and testings are essentially processes belonging to manufacture and supply.

52. At different stages of the War, owing to the need for increasing centralisation of control and direction with regard to the supply and distribution of materials and the use of labour and machinery, the Ministry had to assume responsibilities for an increasing number of supplies such as tanks, railway materials, locomotives, motor transport, agricultural machinery and aeroplanes. For the present purpose reference need only be made to the case of aeroplanes and aeroplane engines, as it illustrated in a striking fashion the difficulties attendant upon divided responsibility and the advantages which followed a concentration of responsibility.

53. In July, 1916, the Air Board made certain requests for priority in aircraft supplies, which were then under the control principally of the War Office and partly, too, as regards the Royal Naval Air Service, of the Admiralty. Arising out of these requests, there was some correspondence between the Air Board and the Ministry, and in September, 1916, Sir Alexander Roger at my request prepared a memorandum, suggesting that the whole business of aircraft supply should be transferred to the Ministry, and, in the course of reviewing the difficulties then being experienced, gave cogent reasons for so doing. During the concluding months of 1916 the subject remained in dispute between the Air Board, the Admiralty and the War Office, and at different times came before the Cabinet.

The complaints from the Front as to the inadequacy of the supplies continued to increase, but it was not until after the change of Government in December, 1916, that the responsibility for supply was transferred to the Ministry of Munitions.

I instructed a group of principal officers to examine the position and recommend a scheme of work. On their advice I appointed Lord Weir as controller of aeronautical supplies with the late Sir Percy Martin as his chief assistant. It appeared that deliveries of aeroplanes and engines were hopelessly in arrear of orders, and a multiplicity of unassociated orders and a needless multiplicity of variety of types largely contributed to the result. Nearly 8,000 aeroplanes of 48 different types had been ordered by the War Office from 38 separate contractors. The Royal Naval Air Service had another 1,500 aeroplanes and seaplanes on order, of 43 different types (of which 15 were the same as the Army's) from 50 contractors, of

whom 18 were also Army contractors. The two services together had on order 9,483 aircraft of 76 different types from 70 different contractors. There was a similar position as regards engines, of which 57 types were on order. It will be appreciated that such a position arose from the development of the experience and requirements of the combatant services, translated into orders given without regard to the exigencies of commercial production and without unity of view. The difficulties were aggravated by competition between the orders of one Department and those of another, and a lack of unity in the consideration of design, while at the same time the contractors had to meet the demands of the Ministry of Munitions for such similar products as motor vehicles and engines. Out of such an ill-regulated confusion there could never have been sufficient production of aircraft to meet the requirements of the war.

54. It is not perhaps necessary to supply the detailed figures, but by the establishment of unity of responsibility in all matters of design under the reconstituted Air Board (leading to the Air Ministry) under Lord Cowdray, and for unity of supply under the Ministry associated therewith, a great reduction in the number of types was obtained and supplies became abundant. In this case the arrangements differed somewhat from those which had come to exist in the case of other munitions, but they furnish an interesting example of a system that worked well in practice and which represented an association of different departmental interests that soon developed into a smoothly functioning machine. They are set out in the attached Exhibit N of 1st February, 1917.

55. The organisation that was progressively developed at the Ministry of Munitions and the accompanying arrangements were not the result with any of us, I think, of any preconceived notions, but were fashioned solely out of considerations as to what was the best way of overcoming the difficulties that presented themselves and of performing the task allotted to us.

56. The practice previously adopted had been to place contracts on what was called a basis of tender. But so far as the supplies of the more specialised types of munitions were concerned, such as guns, shells, rifles and machine guns, that meant in fact that the transactions were limited to a relatively small group of manufacturers with whom there necessarily came to be established a close working relationship, and there seems to have arisen a sort of understanding as to the prices to be paid for different supplies. So far as I ever ascertained there was no effective competition between these firms as to price, whilst there were many evidences of a fairly close understanding between them. The striking similarity between the prices paid for shells to the large firms with whom the War Office had been accustomed to deal against the much lower prices arranged with outside firms by the Ministry in the first weeks of its existence is an example.

57. The circumstance that induced me in the early days of the Ministry to employ cost accountants was that as Mr. Lloyd George had asked me to take charge of financial matters, I found that neither in the Contracts Department of the War Office nor from inquiries from representatives of the different firms was I able to find anyone who could, or would, give me any indication as to what things cost to make. I cannot over-emphasise either the complete lack of information in this respect or the difficulties it caused. I, therefore, decided to employ those who would be able to inform us as a result of precise inquiries in these factories or workshops which were under our immediate control. This formed the commencement of the cost accounting system. It was gradually developed and it ultimately extended its authority, under my direction, to all departments of supply and manufacture.

58. The cost accounting system was not established without difficulty. It called for the exercise of a good deal of tact on the part of those employed, as well as firmness in their support. In

the course of time, however, it became accepted and worked without much difficulty as a matter of routine.

We did in fact make allowances on the generous side for overhead charges in the case of the old-established munition firms; but in the circumstances of the time I did not press inquiries in this respect so long as we obtained what we felt were fair prices. The prices that we accepted in February, 1916, referred to in paragraph 15, are evidence of this if they are compared with the costs as we found them in our own factories.

59. The regular institution of a system of costings also lead to the revelation of waste in many directions and to a progressive improvement in the manufacturing methods.

60. What the total of the savings effected for the State by the application of this system throughout the life of the Ministry amounted to in the aggregate I am not able to say, but it was undoubtedly a prodigious figure—certainly in the hundreds of millions of pounds.

61. It cannot, I suggest, be questioned that a cost accounting department with similar powers and authority should be an essential part of any department of the State responsible for obtaining supplies—whether those supplies are obtained from state factories or from other sources.

62. When we turn to the best methods of obtaining supplies for war purposes, we have to take account of the nature of the supplies themselves and of the extent to which they are identical with, or akin to, those required for civil purposes. It does not follow that, whilst, say, pig-iron is required for a great number of purposes and at the same time is necessary for guns and shells, we cannot for practical purposes make distinctions between the end products. It would, I think, be quite practicable to classify separately such munitions as are articles manufactured for, and only for, the purposes of war. I will refer to these later as Group A.

63. In another class there are supplies of a lethal type, such as some explosives and certain chemicals which are used in industry and are also of a type required for war purposes. It should, however, be remembered that some explosives required for war purposes are different from those required in industry. These will be referred to as Group B.

64. Beyond these there are many articles which are required in civil industry as well as in war without a change of form, such as, say, glycerine, alcohol and many other materials as well as certain manufactured articles like optical instruments, photographic apparatus and many more.

The proportionate quantities of them that war necessities would call for may, and would in some cases, be very different for those of peace, but I suggest it would not be necessary for present purposes to regard them as munitions of war.

65. It cannot be denied that nine months after the late war had begun, and when every effort had been made to make the system of reliance on private manufacture meet the nation's need, that the system had proved to be a tragic and perilous failure. If we review the supplies forthcoming up to May, 1915, the only place in which deliveries had been up to promises was the national arsenal at Woolwich. (Par. 6.) In that case deliveries had exceeded anticipations whilst in the case of the chief munition firms deliveries were so terribly in arrear that the promises for delivery were a source of danger.

So meagre was the allowance of ammunition for the armies in France that it is probably no exaggeration to say that defeat was only narrowly averted by the heroism of our soldiers under great disadvantages and by the success of our national arsenal. I know of no case in our history where a great industry has been so disastrous a failure in a time of need.

66. Up to May, 1915, the type of the munitions asked for had not greatly altered from anticipations except that there was an increasingly insistent

demand for more. The tank and other inventions had not been developed, although the demand for trench warfare munitions (some of which the private makers professed to be able to supply) was increasingly urgent. Private manufacturers could not, however, in any case be held responsible for developments that were unforeseen and should only be judged in the case of such supplies as they were presumably competent to provide.

67. Their failure in this respect was, I think, necessarily consequent upon the system adopted despite the fact that the inquiries of the Ministry's experts revealed an unexpected degree of industrial inefficiency in their works management in some cases. (See Exhibit C, para. 9 (c)).

68. An analysis of the case reveals the following three main reasons for the failure:—

(a) The system encouraged a reliance upon a limited group of makers and accordingly restrained endeavours to make use of the manufacturing capacity of others.

(b) The firms themselves accepted orders in the hope, no doubt, that by strenuous efforts they would be able to carry them out, but it is certain that these acceptances had not been measured by any expert and impartial examination of their workshop capacities. Their own supplies of machinery and expert labour were quite insufficient. The fact that they made promises they were not able to fulfil and that the system necessarily encouraged the War Office to rely upon those who made the promises is serious in itself, but I suggest that it is not reasonable to expect that private manufacturers should maintain machinery in their workshops in peace time that is not fully used. The anticipations often indulged in of their great potentialities of expansion in war time do not rest upon any serious examination of the nature of the industrial considerations involved.

(c) The firms were unable to obtain adequate reinforcement of their manufacturing capacities either by sub-contracting or by their endeavours to obtain more labour, machinery and materials, and I believe these limitations are inherent in the system. They call for separate notice.

69. With regard to sub-contracting the additions to such supplies as the firms themselves were able to provide that were obtained in this way were less than might have been anticipated and made no substantial contribution to the total output.

The reasons were threefold:—

First: in the circumstances of the time the patriotic impulse of other firms was to prefer to manufacture for the state rather than for a major contractor. This disposition was manifested in the strong demand for a wider spread of war orders that had become very pronounced before the Ministry of Munitions came into existence.

Second: Manufacture depends upon an adequate supply of precise drawings, specifications, gauges, etc., and these the major firms were unable to supply in any adequate measure to their sub-contractors. Indeed, the shortages in these respects, especially in the supply of gauges, involved delays extending over three or four months after the Ministry was constituted before it was able to provide them in sufficient numbers. The provision of a supply of these critical "key" requirements beyond their own needs clearly cannot be expected to be the business of private manufacturers.

Third: The placing of miscellaneous orders to fill the blanks in their own production created confusion in the processes of inspection and assembly and involved activities that were not in line with the ordinary work of manufacturers.

It should be remembered that a completed article like a shell, for example, consists of a great many parts and the processes of co-ordinated assembly and inspection for the provision of completed supply are of vital importance.

The state of affairs that was found to exist can only be described as chaotic, and one cannot imagine how these sections of the work could possibly be efficiently managed except by a central organisation with full knowledge over the whole field.

What applies to constituent manufactured parts applies with even greater force to the assembly and filling in an orderly manner of primers, gains, shells, cartridge cases and the rest which make up a "completed round."

70. Reinforcement in labour, machinery and materials.

Labour.—With regard to the reinforcement of their manufacturing capacity by obtaining additional supplies of labour the private firms were under special disadvantages. There was first the drainage that had taken place generally by enlistment. It included large numbers of skilled workers and gave rise to the efforts subsequently made to secure their return from the Army. Apart from this, an individual firm could only obtain extra labour by taking it away from another. The men naturally preferred if possible to work in their accustomed place, and their employers strove to obtain orders that would employ them. Even with the full machinery of the state, coupled with patriotic appeals, we met with only a small measure of success in the scheme afterwards known as the War Munition Volunteer Scheme.

Machinery.—As with labour so with machinery. It was not possible, save at great cost and to a trivial extent, for one firm to obtain machines already installed in the works of another. There was, of course, a great heaping up of orders for new machinery and new machine tools from established makers, but deliveries had to wait their turn and there was not, and in the nature of the case could not be, any arrangement that secured delivery according to any priority of importance. The position that was found is sufficiently indicated by the fact that the Ministry, as one of its earliest efforts, had to take a census of existing machinery and assume complete control over machinery and machine tool manufacture and supply, as well as their distribution in relation to need.

Materials.—So far as materials are concerned, if war should unfortunately arise it may be predicted with confidence that, as in the last war, the requirements for materials in many important respects would be widely different from those of peace time, both in regard to the relative quantity required of various materials as well as to differences in the form in which they would be required. The state would be compelled to take control both in order to obtain adequate supplies and in order to allocate them as required. Such action also would be necessary to safeguard the community against exploitation.

71. It appears to me to be undoubted that the experience of the late War points not only to the desirability but to the necessity from the point of view of national defence of the establishment of a state department responsible for the manufacture and assembly of all munitions of war strictly so-called. I mean the articles manufactured for, and only for, the purposes of war which I have previously referred to as Group A (paragraph 62). This conclusion is entirely apart from the grave considerations of national policy relating to the undesirability of manufactures of this kind being in private hands for the purpose of gain.

72. There should, I suggest, be a single supply and manufacturing department for all war departments, the following being some of the more prominent considerations:—

(1) There were numberless instances of the difficulties, and sometimes waste, which arose out of different service departments seeking to obtain the same materials as well as machinery at the same time. Because of those difficulties the supply of materials and machinery became progressively concentrated in the Ministry of Munitions. The advantages of unified responsibility are manifest, where imported supplies are concerned.

(2) The disorder and possible waste and loss to the efficiency of supply are equally cogent in the case of manufacture either in national establishments or by private firms. The overlapping of orders and divided responsibility in the case of aircraft supplies is a striking example.

(3) Similarly great economies as well as improvements in manufacturing efficiency are obtainable through a costings system under unified and experienced direction. The difficulties that arose between the Ministry of Munitions and the Admiralty over cordite prices, of which details can be supplied if desired, furnish an illustration of the losses that may arise from divided responsibility.

(4) The processes of transport, assembly, inspection and filling are those in which unless there is unity of direction there must be unnecessary delays and disorder.

(5) The work of design and experimentation is inseparably associated with that of manufacture and supply, and, as the evidence has shown, serious difficulties and delays occurred during the first year of the work of the Ministry of Munitions, because design had not been associated at the start. The records of the Inventions Department of the Ministry (which can be supplied if desired) are a good example of how an alert central department can be directed to make use of and develop not only the suggestions of its own experts but those which come from outside. The cases in which this department assisted to bring up to a workable form suggestions often of quite humble people were very numerous. There were some thousands of cases great and small. It is certain that had it not been for these arrangements very many useful ideas would never have been made use of. The case of tanks referred to by Sir Eustace D'Eyncourt—who was himself the chief designer in the Admiralty—is an example of how a central department (the Ministry of Munitions was responsible for tank supply) was able to make use of and provide facilities for the development and perfection of outside suggestions. The Stokes mortar is another example.

(6) There is a final and most important reason for the existence of such central department as is here suggested, namely, that only by such an agency would it be possible to mobilise and secure the rapid utilisation of appropriate private manufacturing capacities to provide expansion in the case of war. This consideration calls for suggestions as to how such a department would operate.

73.—(1) The department would be responsible in peace time for the supply and manufacture in state-owned factories and establishments of all war munitions indicated in Group A (paragraph 62) and for all manufactures relating to chemical warfare that might arise in Group B* (paragraph 63), and for such others as circumstances or new developments might bring into the category of productions for war use only.

(2) It would manufacture and store such reserves as might be deemed necessary. The number of months of prospective war use which such reserves would be designed to cover would be conditioned in different cases by the rapidity with which supplies could be augmented in the event of war by the increase of state manufacture or by the mobilisation of the resources of appropriate private manufacture.

(3) In the case of some specialised types of machinery it would probably be found desirable also to establish certain reserves for expansion purposes in the state factories since private manufacturers could not be expected to maintain them.

(4) With regard to explosives referred to in Group B, it would, I think, suffice if the state department manufactured the specialised supplies used in chemical warfare and only such explosives as were

* Supplies of a lethal type, used both in industry and for war purposes.

required for its peace time activities and for reserve supply. For expansion in time of war, it should have appropriate arrangements with private manufacturers, who normally produce allied products for a great variety of civil industries.

(5) The department would require to take and keep sufficiently up-to-date records of the quantities, types and location of such machinery and materials as might be required for different purposes.

(6) It would prepare and have available sufficient supplies of drawings, specifications, gauges, etc., as might be necessary to facilitate the expansion required.

(7) It would have in readiness an appropriate classification of private establishments and be pre-

pared with the necessary control orders in respect to them as well as in respect of materials supply.

74. The above suggestions are derived from my experience at the Ministry of Munitions, and not merely from such small part of it as I have had space to set out in preceding paragraphs. The principles I have in mind could be applied to other types of munitions, including naval requirements, as well as to those with which I was more intimately concerned and to which I have referred above. I cannot foresee what questions will present themselves to the Commission as regards the working out of my suggestions, but I shall, of course, be glad to answer any such questions to the best of my ability.

EXHIBITS

INDEX TO EXHIBITS.

<i>Exhibit. Para.</i>	<i>Document.</i>
A 7	29th May, 1915. Shells: promises, deliveries and arrears.
B 13	30th Nov., 1915. Letter illustrating difficulties with contractors.
C 14	24th Jan., 1916. Report by committee on contracts and costs.
D 14	31st Jan., 1916. Minutes of meeting with contractors.
E 16	18th May, 1916. Reduction in prices of cordite.
F 17	15th Aug., 1916. Circular to controlled firms.
G 21	— Statistics of supply of shells during war.
H 41	16th July, 1915. Report on materials for explosives.
I 45	24th July, 1915. Circular letter to machine tool trade.
J 46	April, 1916. Report about Machine Tool Department.
K 48	April, 1917. Economies effected by Ministry.
L 48	1st Jan., 1917. Minutes of meeting with heads of departments.
M 50	Nov., 1915. Memorandum and notes about transfer of responsibility for design.
N 54	1st Feb., 1917. Memorandum on Air Board and aircraft supply.

EXHIBIT A.

Position of the chief manufacturers on 29th May, 1915. Shells only. Completed rounds not included.*

<i>Contractor.</i>	<i>Promised.</i>	<i>Delivered.</i>	<i>Arrears.</i>
Vickers ...	907,550	235,550	672,000
Armstrongs ...	1,020,925	308,000	712,000
Firths (Washington) ...	170,700	21,700	149,000
Firths ...	71,300	17,450	53,850
Hadfields ...	30,200	22,000	8,200
Cammell Laird... ..	42,800	6,200	36,600
Projectile Co. ...	289,350	185,844	103,506
Dick Kerr & Co. ...	73,500	14,400	59,100

* Shells only are taken as being the easier to manufacture. If "completed rounds" are included the position is worse.

EXHIBIT B.

Cyclops Steel and Iron Works,
Sheffield.
30th November, 1915.

SIR,

We have the honour to refer to your letter 94/S/676 dated 19th November, and to the interview when Mr. Allen and Major Handley were present which took place at your office on the 29th November.

At that interview we explained our interpretation of the position of the two contracts which have been placed with us, viz.: S/6980 and 94/S/6 for 18 pounder High Explosive Shell.

Our contention is that at the time the contracts were placed it was understood that supply was to continue for a period of not less than the duration of the war. In this connection we produced certain official correspondence and letters which have passed between representatives of this firm and officials of the War Office (by whom the contracts were originally placed) and of the Ministry of Munitions, and in our opinion, the documents support our view.

On the other hand, it was pointed out to our representatives that the clause empowering the Secretary of State for War to give notice to discontinue delivery did not coincide with those views. Taken, however, in conjunction with the correspondence, as well as the recollection of statements made at personal interviews, we hold that this clause was inserted to protect us by making provision for the disposal of any stocks of material on hand, in the event of a sudden termination of the war and was on that account not intended to define or limit the period of the contracts themselves.

Further, with regard to modification in the price of the shell, which your letter under reply suggests, it was pointed out that in our view the contract itself defines the price of each shell, for it states that the sum of £1 (one pound) shall be paid for each shell delivered after specifically named dates. This sum, as mentioned in the correspondence, is open to further consideration under certain conditions, namely: on the one part, if an unexpected rise or fall in wages takes place, and on the other part, should there be an unforeseen advance in the cost of material.

In special connection with contract 94/S/6, we desire to add that definite sub-contracts have been placed by us with four manufacturing firms, for which your approval was obtained. When placing these contracts, we understood that our relations with these four firms both as regards supply and price of shell would be governed by the conditions, as we understood them, of our main contract. Any alteration, such as your letter of the 19th instant suggests, would therefore act prejudicially towards the understanding existing with our sub-contractors.

We therefore trust that the explanation given of our views of these contracts may be deemed satisfactory, and may be accepted as representing the conditions under which our 18 pounder extensions were proposed, erected and installed.

As mentioned in our letter of November 22nd, and as explained at our interview, we desire to assist the Ministry in every way, and if the machines, with any space that may be found available, make possible in our own works the substitution of 18 pounder Shrapnel for 18 pounder High Explosive Shell, we shall submit a detailed proposal for your consideration.

We are, Sir,

Your obedient Servant,

CAMMELL LAIRD & CO., LIMITED,

(Signed) A. HANDLEY,

Director.

EXHIBIT C.

(Armament Firms—Shell Prices.)

Secret.

MINISTRY OF MUNITIONS OF WAR.

Minutes of Meeting of Committee upon general problems arising in connection with expenditure of the Ministry.

The Committee met again on Monday, 24th January, 1916.

Present:

Mr. S. H. Lever.
Hon. N. Charles Rothschild.
Mr. John Mann.
Mr. Frederick Palmer.

Attending:

Mr. Arthur Collins, Secretary to the Committee.

The question of prices of shell to the Armament Firms was discussed and the following statement was approved:—

1. *Reduction in Shell Prices.*—In the latter part of last year evidence had accumulated that prices originally paid and still current for shell were giving a more than liberal margin of profit to the manufacturers. This was shown by actual costs submitted by some of the contractors, mainly engineering firms, who have taken up shell manufacture since the War. This conclusion was confirmed by the members of several district area organisations engaged in shell manufacture. Further, in December, 1915, the costs of shell manufacture in some of the national shell factories became available. This accumulated information was closely scrutinised and table of costs was framed for each kind of shell. In arriving at these costs the production department was requested to base the calculations on a plant equipment of an average nature, in order to yield a rate of cost not so low as could be reached by the best practice, yet on the other hand, not as high as an ill-equipped maker might require to pay.

2. *Armament Firms.*—In the light of this information, intimation was given terminating all "running contracts" on the expiry of the prescribed notice—generally three months. The following armament firms were invited to quote reduced prices to take

effect on the expiry of their "running contracts" and of other contracts terminating on a fixed date, namely:—

Sir W. G. Armstrong Whitworth and Co., Ltd.
Vickers, Limited.
Thomas Firth and Sons, Ltd.
Hadfields, Limited.
The Projectile Co. (1902), Limited.

Meetings have been held with each of the firms except Messrs. Armstrongs, who have so far not consented to discuss any reduction—probably awaiting the result of negotiation with the others. The general result of these meetings was that the firms, with the exception of Armstrongs, admitted that some reduction could be made, but it was evident that the views of the contractors as to prices were widely different from the views of the Ministry, based upon the cost of production.

The contractors stated that they did not desire any unreasonable profit; the Ministry, on the other hand, offered a reasonable profit and followed up by suggesting that the contractors should submit their actual manufacturing costs in order that a reasonable profit might be arranged. In every case this suggestion was emphatically rejected although it was repeated on several occasions. Some information was ultimately submitted but it was obviously of little value and all really helpful information has so far been withheld.

In no case has any reference been made to the powers being sought in the Munitions (Amendments) Bill for investigation of books to ascertain costs.

It may be mentioned that the firms were also asked to state what they deemed a reasonable rate of profit, not upon capital but upon the cost. Messrs. Hadfields, Ltd., intimated that they would be satisfied with 10 per cent., while Messrs. Vickers, Ltd., suggested 20 per cent. upon cost. It is obvious that even 10 per cent. on production would represent a very high return upon the capital employed.

3. *Volume of Production.*—Bearing in mind the urgency of an increased output of shell, the Committee point out that the greater the volume of production the more the cost per shell will be reduced.

4. *Early Prices and present Cost.*—The following is a contrast between the prices paid at present to the five firms above referred to, and the table of costs:

Shell.	Estimated Cost (Average practice) + 10 per cent. for Contingencies.	Prices proposed by Ministry.	Armament firms present prices.				
			Armstrong	Vickers.	Firth.	Hadfield.	Projectile.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
18 pdr. H.E. ...	11 3	12 6	Not fixed.	20 0	—	23 0	—
4-5" H.E. (Mk. V. and Mk. VI).	27 0 to 29 0	34 0 (+ change over 1s.).	47 0	52 0	60 0	63 9	65 0
60 pdr. H.E. ...	42 4	47 6	60 0	63 0	70 0	82 4	—
6 inch H.E. ...	61 0	68 0 (+ change over 6d.).	80 0	—	99 0 U.S.A.	—	90 0
8 inch H.E. ...	125 6	142 6*	—	—	240 0	—	—
9-2 inch H.E. ...	193 0	210 0*	262 6 (+ plant)	287 0	—	305 0	295 0
<i>Shrapnel.</i>							
13 Pdr. Sh. ...	13 0	14 3*	—	16 0	—	—	15 6
18 Pdr. Sh. ...	17 0	18 6*	17 6	17 8	—	—	20 0
60 Pdr. Sh. ...	51 5	56 0*	—	67 6	75 0	—	60 0

* Not yet offered to Contractors.

5. *Contractors' Contentions.*—The Armament Firms seek to justify their claims for a scale of prices higher than those paid to other firms on two main grounds, namely:—

(a) that they have rendered special services to the Government by prompt delivery of shell in the great emergency at the outbreak of the War, and that they produce thoroughly high class work. This has been freely recognised and appreciated by the Ministry's representatives,

but it has been pointed out that the prices—very generous prices—hitherto paid, have provided full compensation for any such special assistance.

(b) that their establishment charges are necessarily very much higher than those of an ordinary engineering firm and of other manufacturers making shells, because:

(1) they have to support in some cases a costly world-wide selling organisation;

- (2) they maintain an expensive general office and drawing office organisation;
- (3) that some of their chief departments, e.g., Armourplate, are not fully employed.

In reply it has been pointed out that the departments, other than shell making, doubtless yield a rate of profit sufficient to bear those special expenses and it is unreasonable to burden the price of shell with a rate of general expense which does not apply and is higher than that of other shell manufacturers. Further, it was argued that as results vary from year to year it is understood that ample reserves have been accumulated to meet the abandonment or temporary suspension of the manufactures such as armourplate.

There is reason to believe, although the point has not yet been raised, that in the case of Vickers, at least, the cost of world-wide selling organisation upon which they have laid so much stress, has been amply met by the commission earned on orders placed in America for the British Government. At one juncture a contractor complained that the Ministry was now compelling acceptance of prices lower than those paid in peace times when costs were much lower. The obvious retort was made that such prices could not have been truly "competitive" prices such as those now offered by other makers—*notwithstanding the enhanced costs to them.*

6. Uniform Prices.—The suggestion was made that the same prices should be paid to all the firms referred to, but there are obviously grave difficulties in adopting this course. For instance, some firms contend that they have special local difficulties, such as high piece-work rates, which cannot be reduced, or again, in the class of the plant employed. Others have been assisted in the purchase of plant by large Government grants (in some cases repayable and in some not repayable). The Projectile Company claim that their labour costs are lower than the Sheffield rates, but they declined to admit this as a reason for accepting a correspondingly lower price. In short, a uniform price, while giving a fair profit to the least favourably situated contractors, would give an excessive profit to the most favourably situated contractor and therefore injustice would be done to one or other of the contracting parties.

7. Present position of negotiations.—In every case the negotiations have reached a stage where it rests with the contractors to give a decision as to submitting their costs or submitting fresh quotations. There is reason to believe that members of some of the firms have been approaching several departments of the Ministry, evidently with a view to bringing indirect influence to bear which they hope may result favourably to them. It is obvious that if such overtures are not discouraged the negotiations will be seriously prejudiced.

8. Production uninterrupted.—In cases where contracts were on the eve of expiry, temporary renewals

have been arranged on the agreement that whatever prices were ultimately fixed, such prices would be retrospective. In one case a relatively high price was agreed upon in order to prevent any interruption of production. All the firms have been told that it is the wish and desire of the Ministry to take full advantage of their utmost capacity on the understanding that suitable prices will be ultimately arranged, and there is no reason to think that there has been any slackening of production. If the analogy of wages disputes is extended to price disputes, the contractors may be required to continue full production during negotiation, just as they require their own men to continue at work during wages arbitration.

9. Conclusion re armament firms.—The only conclusion that can be reached at present is that:—

- (a) Past prices have contained an excessive profit which they are probably unwilling to disclose.
- (b) Their system of cost accounting is in some cases incomplete and illusory and, if corrected, would disclose the actual costs.
- (c) The organisation and management of their works are inferior to those of other shell manufacturers.

10. Proposed procedure.—The procedure would therefore seem to be to adhere to the request for accurate recent manufacturing costs; verify them if necessary under the new powers and offer a reasonable profit of about 10 per cent. upon the ascertained costs. An alternative method which may be suggested is a co-operative form of contract which has proved acceptable to several of the new shell makers. Under it the shells are charged at actual cost with an addition of a fixed sum per shell to encourage production and to encourage economy, a proportion of the savings between the actual cost and a fixed maximum payment or standard price. A meeting with all the firms is not desirable, but need not be refused if requested. Conditions seem to vary so much that separate negotiations are necessary in every case.

11. Wm. Beardmore & Co., Ltd.—With regard to Messrs. William Beardmore & Co., Ltd., the position is rather different, because from the beginning of the War they have been actively manufacturing various types of shells without any definite contract. Prices have now been agreed upon a substantially lower scale than those provisionally arranged and lower than the prices other armament firms were receiving. The Department was very fairly met and a scale of prices was adopted up to 30th June, 1916, which under all circumstances was admitted to be reasonable.

12. Recent contracts.—The larger shell contracts recently placed are:—

	Contractor.	Output per week.	Price.
18 pdr. H.E. ...	Austin Motor Co., Ltd.	20,000	s. d.
	Cravens	8,000	12 6
	Dorman Long	20,000	12 6
	Beardmore	32,000	12 6 (plus 1s. for plant).
			12 6 (plus 1s. 6d. for plant).
4.5" H.E. ...	Beardmore	6,000	s. d.
	Humber, Ltd.	4,000	40 6 (including plant).
			Cost plus bonus
	Standard Engineering	1,500	Maximum 42s. 6d.
	Sheffield Simplex	8,000	do 42s. 6d.
			42 6 (less depreciation).

13. *District Area Organisation*.—A reduced scale of prices was issued on 5th January, 1916, under which the following contracts have already been placed:—

	Boards of Management.	Output per week.		Average Price. s. d.
		Total.	Average per firm.	
18 Pdr.	Coventry Manchester Leicester East Anglia (Total contract)	8,100	675	14 8
		33,500	930	14 0½
		600	150	16 0
		150,000		12 6
4·5" Mk. V. ...	Hull Leicester Coventry	5,000	625	44 0
		4,000	350	45 3
		500	500	44 0
4·5" Mk. VI. ...	Leicester Coventry Blackburn	1,000	350	47 3
		400	400	47 0
		1,500	150	Scale prices.
6" H.E.	Blackburn do. (new contractor)	900	112	82 6
		300	300	87 6

EXHIBIT D.

Minute of Meeting, Monday, 31st January, 1916.

Present—

Dr. Addison (in the chair).
 Sir Frederick Black,
 Mr. Lever,
 Mr. Hanson,
 Mr. Mann,
 Mr. Jenkins,
 Mr. Kellaway,
 Mr. Barlow,
 Sir Vincent Caillard,
 Sir Trevor Dawson,
 Mr. Morris,
 Mr. Hichens ... } Messrs. Vickers.
 Admiral Otley ... }
 Mr. Noble ... }
 Mr. Clarke ... }
 Mr. Jack ... } Messrs. Hadfields.
 Mr. Hoyle ... }
 Mr. Cayley ... } Messrs. Firth.
 Projectile Co.

The representatives of the firms had been invited by Dr. Addison to attend in order that the Ministry might ascertain their views in regard to the prices of the more common types of shell, about which negotiations had already taken place with the individual firms.

Dr. Addison said that there were three possible ways of fixing the prices for shells—

- (1) to agree on a uniform price;
- (2) to ascertain the cost in each case and allow an agreed percentage over it for profit;
- (3) a "co-operative" scheme, such as had been agreed on with some Scottish firms; the Ministry pays the cost of material and labour and the actual establishment charges plus a certain bonus per shell and, in addition, allows one-fourth of any reduction in cost below a fixed maximum charge per shell.

He said that the actual costs of production in Government factories have been definitely ascertained. Mr. Cayley, Mr. Hichens and Mr. Jack urged the point that the cost of production was very much greater in an old-established firm than in a small new factory erected for one special purpose and that there were special charges, e.g. for experimental work, gun ranges, submarine testing stations, which should be taken into account.

Mr. Jack added that some regard should be had to precedent. The War Office in peace time had given Hadfields millions of pounds worth of orders at 25

per cent. profit which means really 33 per cent. Dr. Addison agreed that full allowance should be made for such costs of the kind mentioned as could properly be charged to the production of shells under consideration, but he could not admit that, e.g., any part of the cost of a submarine testing station should be included in the cost of shells.

Sir Trevor Dawson suggested that the difficulty of agreeing on the amount to be allowed for establishment charges should be met by the Ministry accepting the statement of the firms' auditors. He thought that Vickers, at any rate, had given all reasonable information to the Finance Department.

Dr. Addison said that he could not express an opinion on this proposal until he had seen it in writing.

Messrs. Firths' representative said that the firms are prepared to accept a smaller percentage of profit than in normal times, but that the Ministry of Munitions' offers are below the minimum net cost of working. He and Mr. Hichens suggested the appointment of a committee, including representatives of the manufacturers, to fix prices. The system of bargaining separately with individual firms is unsound in principle. Dr. Addison said that he was not prepared to agree to the appointment of such a committee.

After further discussion, Dr. Addison handed round a list of the prices of shells fixed by the Finance Department for deliveries up to the end of June, explaining that these were based on ascertained costs and were not to be regarded as minimum prices or as a basis for bargaining. Large firms had already taken substantial contracts at these, or in some cases at lower prices. In reply to inquiries he refused to give the names of these firms without their permission. He emphasised the point that if any firm was not prepared to take orders at these prices they must satisfy the Ministry that their reasonable costs were in excess of those on which the prices were based. Full information as to the Ministry's costs will be placed at the disposal of any firm and allowance would, of course, have to be made in individual cases for any capital advances which might have been made.

The representatives of the firms agreed to consider the prices among themselves and to come back with their observations on Thursday, February 3rd, at 3 o'clock.

Dr. Addison referred to the urgent necessity for an economical use of labour both by the firms themselves and by their sub-contractors, and handed round advance proofs of the pamphlet illustrating the use of women's labour.

Secret.

MAXIMUM PRICES SUGGESTED FOR CERTAIN TYPES
OF SHELL.

29th January, 1916.

<i>Promised</i>		<i>Price.</i>	
<i>H.E. Shells.</i>	<i>Weekly Output.</i>		
2.75" ...	1,000 ...	11s.	
	2,000 ...	10s. 6d.	
	2,000 and over	10s.	
13 Pdr. ...	1,000 ...	11s. 9d.	
	2,000 ...	11s. 3d.	
	2,000 and over	10s. 9d.	
18 Pdr. ...	3,000 ...	13s.	
	4,000 ...	12s. 9d.	
	5,000 and over	12s. 6d.	
4.5" Mk. V ...	—	33s. 6d.	} Add 6d. for change over.
Mk. VI ...	—	34s.	
60 Pdr. Mk. V ...	—	Not fixed.	
Mk. VI ...	—	50s.	
6" Mark XV ...	—	Not fixed.	} Add 6d. for change over.
" XVI ...	—	£3 8s. 0d.	
8" Mark III ...	—	£7 15s. 0d.	
9.2" ...	—	£10 10s. 0d.	
12" ...	—	£20 5s. 0d.	

Shrapnel.

	<i>Price.</i>
13 Pdr. Sh. ...	16s. (17s. to 30th April to new contractor).
18 Pdr. Sh. ...	18s. 9d.
60 Pdr. Sh. ...	55s.

Note.—On basis of Steel at £15, Bullets £44 per ton; variations to affect prices corresponding.

Prices based on Cost including 33½ per cent. per annum depreciation on plant; 10 per cent. on buildings and interest at 6 per cent. on working capital. Repairs to plant (exclusive of small tools separately allowed) at 10 per cent.

Prices are on the basis of steel at £15 per ton uncut for sizes up to and including 6" or £16 per ton cut into billets of not less than 43 lbs. For steel over 6" up to and including 9.2" £16 10s. uncut or £17 10s. cut into billets. For steel above 9.2" £17 10s. uncut or £18 10s. cut.

EXHIBIT E.

MINISTRY OF MUNITIONS.

Estimate of saving resulting from recent negotiations as to prices of Ordnance Cordite.

1. The following statement shows the reduction in price per lb. of ordnance cordite agreed in respect of the Misk Factory as compared with

- (a) Pre-war prices.
(b) Prices in 1915.

	Price per pound.			Saving per lb. compared with	
	Pre-war Price.	Price in 1915.	New Price.*	Pre-war Price.	1915 Price.
M.D.T. 20/10	s. d.	s. d.	s. d.	s. d.	d.
M.D. 16 and above	—	2 9	2 2	—	7
M.D. 11	1 10½	2 3	1 8	2½	7
M.D. 8	2 0	2 4½	1 9	3	7½
M.D. 4½	2 0	2 4½	1 9½	2½	7
M.D. 2½	2 2	3 1½	2 2	—	11½

* *Note.*—(1) The new price includes a special allowance to Nobel's Company of about ¼d. per lb. for extra cost

of carriage which it may not be necessary to allow to other contractors.

(2) The new price as stated above does not include any allowance in respect of the risk as to loss from explosion which under the new arrangements the Minister is to bear.

2. The average reduction compared with 1915 prices may therefore be taken as 7.25d. per lb.

In considering this figure regard should be had to the following facts:—The present cost of raw materials is 5d. per lb. of cordite in excess of the cost in the pre-war period and 3.2d. per lb. in excess of the cost in the latter part of 1915.

3. The total production of cordite from private firms in the United Kingdom is expected to rise to 5,473 short tons per month in the latter part of 1916.

Ministry contracts	... 2,863 short tons per month.
Admiralty contracts	... 2,610 short tons per month.
	5,473 short tons per month.

4. 1d. per lb. on annual production by the firms at this rate will equal £547,000 per annum.

Ministry contracts	... £286,000 per annum.
Admiralty contracts	... £261,000 per annum.
	£547,000 per annum.

5. The total saving in a full year on Ministry and Admiralty contracts when the result of recent negotiations is fully applied, taken at 7.25d. per lb. on the above production, is on—

Ministry contracts...	... £2,073,500
Admiralty contracts	... £1,892,250
Total	... £3,965,750

Finance Department,
Ministry of Munitions.
18th May, 1916.

EXHIBIT F.

London and Eastern Counties Association
of Controlled Establishments,
82, Victoria Street
Westminster, S.W.
August 15th, 1916.

Private and Confidential.
Issued to all Members.

DEAR SIRS,

Detailed manufacturing costs, and placing contracts without prices.

I am directed to inform you that, in connection with the above matters, the Central Council hold the opinion that pending a settlement it is important that all Controlled Firms should continue to resist all demands for detailed manufacturing costs, and should press on the Government that, save in cases of exceptional urgency, prices should be fixed before orders are placed.

Yours faithfully,

(Signed) STAFFORD RANSOME,
Secretary.

EXHIBIT G.

Supply, etc., of all types of shell (thousands).

	1914.	1915.	1916.	1917.	1918.
<i>Empty shells.</i>					
Government factories	77·3	1,409·7	8,534·0	17,331·0	18,350·9
Munitions committees	—	520·3	9,839·3	17,233·4	16,757·0
Trade	168·1	6,384·5	15,315·2	22,074·4	28,704·0
Imports	—	8,022·4	41,848·5	27,533·0	18,330·0
All sources	245·4	16,336·9	75,537·0	84,171·8	82,150·9
<i>Filled shells.</i>					
Government factories	527·8	5,079·1	37,682·2	66,320·0	59,795·1
Trade	—	859·9	8,177·7	9,928·7	7,644·2
Imports	—	1,487·3	5,736·1	11,428·0	2,375·3
All sources	527·8	7,426·3	51,596·0	87,676·7	69,814·6
<i>Expenditure on Western Front</i>	4,214·2		33,504·4	67,619·7	62,243·5

EXHIBIT H.

REPORT OF EXPLOSIVES DEPARTMENT ON RAW MATERIALS ESSENTIAL TO THE DEPARTMENT.

Phenol.—U.K. production now about 5,000 tons, all urgently wanted for the manufacture of picric acid, nothing should be used for any other purpose except under extreme necessity.

Tolual.—Whole production urgently wanted, at present small quantity being used for dyes, this will probably have to be stopped later.

The above two products have been entirely under Government control for some time past.

Benzol.—Will probably sooner or later all be required for explosive purposes, either for ourselves or Allies. Fairly large quantities are being used for the production of aniline dyes at present, this will probably have to be curtailed in the near future.

Naphthaline.—Used for dyes and the preservation of skins and hides, while this is not used by our Government, it is used largely by the French and is of the utmost importance to them, their position should be protected.

Glycerine.—It is probable that the whole production of the U.K. will be required for explosive purposes.

Cotton Waste.—Very large quantities will be required.

Nitrate of Soda.—Very large quantities are required for nitric acid making, and otherwise in the manufacture of explosives, and a considerable reserve is now being held by this Department but it is not desirable to draw upon this if it can be avoided.

Caustic Soda.—Large quantities will be required shortly for the manufacture of synthetic phenol.

Pyrites.—Large quantities will be required for the manufacture of sulphuric acid. A considerable reserve has accumulated in this country by the Department.

Potash and its compounds.—Large quantities are required for gun-powder and also for various explosives. The supply of potash is very short.

Acetone.—The whole production will be required for explosive purposes.

Aluminium.—This Department needs large quantities of the powdered and granulated qualities. It is however covered by purchases to the end of 1916 as regards the former (according to the present scale of production), and to the end of the year as regards the latter.

(Signed) R. SOUTHERN HOLLAND.

Explosives Department,
Ministry of Munitions.
16/7/15.

EXHIBIT I.

Ministry of Munitions.

24th July, 1915.

GENTLEMEN,

The Army Council, by an Order dated May, 1915, instructed you to divide all orders for machine tools into two classes, "A" and "B," and instructed you to give precedence to Class "A."

A subsequent Order of the Army Council further instructed you to accept no orders for machine tools, except for British and Allied Governments, their contractors and sub-contractors, without the express permission of the War Office, and further instructed you to make certain returns as to work in progress.

In view of the continued heavy demands for machine tools for the manufacture of munitions of war, it has now become necessary for the Minister of Munitions, in the exercise of the powers conferred on him by the Ministry of Munitions Act, 1915, and by the Ministry of Munitions Order, 1915, and with the assent of the War Office, to assume more complete control over the machine tool trade of the country.

I am, therefore, to instruct you that, from this date, you are to accept no orders for machine tools from any government, person, or persons whatsoever, other than the Minister of Munitions (or such Department or Departments of the Ministry of Munitions as the Minister may authorise), the Admiralty, or the Army Council, except with the express consent of the Minister of Munitions (or such Department of the Ministry of Munitions as aforesaid).

I am further to instruct you that you may, at the discretion of the Minister (or of such Department as aforesaid), be required from time to time to suspend or divert any work of any description which you may have in progress, or to cancel any orders which you may already have received.

I am,

Gentlemen,

Your obedient servant,

H. LLEWELLYN SMITH.

EXHIBIT J.

D.G.M.S. D.D.G.A.

19th April, 1916.

NATIONAL SHELL FACTORIES.

CENTRAL PURCHASE.

The question of purchasing machine tools for the national shell factories appears to me to be the much bound up with the purchasing of tools for

other national purposes, such as the national projectile factories, filling factories, gun factories, small arms factories, torpedo factories, and with purchases for the Admiralty and for private firms and companies who are employed on urgent war work.

At present the supply and distribution of all the machine tools made in the country, or purchased from abroad, is controlled by the Machine Tool Department, which has the power of controlling the acceptance by makers in Great Britain of all orders for machine tools from whatever source they may be received.

When obtaining machines for national shell factories, it is frequently possible to divert to the shell factories machines already purchased by the Ministry, or put in hand by the machine tool makers for other requirements which may not be ready to receive the machines.

One of the objects of the Machine Tool Department is to secure that all machine tools made are put to work as early as possible, so as to get the earliest attainable production. The national shell factories are thus frequently provided with machines originally intended for other factories, this being possible owing to the fact that the requirements of all factories of whatever kind are continually under the eye of the Machine Tool Department.

At the present time the Machine Tool Department acts as a general clearing house for machine tools, and I think should be permitted to continue to act as such in obtaining machine tools for National shell factories.

The Machine Tool Department has, in the past, worked very harmoniously with D.A.O. and has received great and valuable assistance from the Area Engineers attached to A.M.3, and my view is that the desired "central purchase" already exists.

With regard to the future, the greater part of the purchases of machine tools for the national shell factories have already been made, the remaining purchases being mainly for the purpose of balancing plants, replacing machines worn out, or replacing unsuitable machines, and providing for such extensions of output as may be sanctioned from time to time.

I give below a brief outline of the method of purchasing machine tools for national shell factories:—

The requisition is usually received, in the first place, from the factory and is in all cases referred to the Area Engineer for his approval. If the Area Engineer and the Machine Tool Department approve, arrangements for the purchase are made by the Machine Tool Department, the actual order being placed by the factory. D.A.O. are frequently consulted in these matters and the advice and assistance of D.A.O. is always welcomed.

The prices at which orders for machine tools are placed are always investigated, and the Machine Tool Department, in many cases, has enabled substantial reductions in cost to be obtained.

Records of the numbers of machine tools already delivered to each factory are now being compiled by the Department, and the intention is to keep continuous records of all machines delivered and yet to be delivered, so that the exact position of each factory may be known from week to week.

Inspectors are stationed in the various districts where the machine tools are made, who constantly visit the makers' works and report progress, and, in many cases, arrangements are made to assist those who are backward by transferring part of their orders to other firms who are in a more favourable position to deliver.

(Sgd.) P. V. VERNON.

A.M.5.
19.4.16.

EXHIBIT K.

Economies.

The matter of economy effected by the Ministry is a wide subject but I take it you simply want a few heads which can form a basis for argument.

1. National Factories¹

2. *Co-operative Contracts.*—A statement² is attached in regard to the "Glasgow Shell Scheme" which was a scheme instituted by the Ministry under which contractors were paid on a basis of cost with a bonus for keeping cost low. You will see that the contractors have produced big shells at a cost of one and a quarter millions which at contract prices ruling would have cost one and a half millions, i.e., a saving of a quarter of a million in very much less than a year, on a capital of half a million.

3. *Reduction of Contract Prices.*—A further statement³ is attached showing reduction effected in the price of shells to principal armament firms. It will be realised that the principal cut occurred early in 1916 but the prices have again been reduced and this will result in a saving of half a million pounds as compared with 1916 figures notwithstanding the very large rises in wages which have occurred in the meantime. A further statement⁴ is attached showing the result of certain negotiations in regard to contracts for filling gun ammunition. You will see that these negotiations have resulted in a saving at the rate of £370,000 a year. This, of course, is only typical of negotiations which are constantly in progress and they are dependent almost entirely on the excellent results which we have obtained by examination of contractor's costs.

4. *Cost Examination.*—Investigations have been made into the cost of certain goods and services carried out by contractors for the Ministry. Between four and five hundred of these investigations have taken place and the results are of inestimable value both in negotiating with contractors and for the purpose of forcing prices down. For example, after a recent examination into the cost of brass rod and brass stampings the firms interested in this work agreed to a reduction of prices which has resulted in a saving at the rate of £300,000 a year. Important reduction in prices asked by contractors for aircraft material have similarly been effected and the principle is now being applied in every branch of the Ministry's work to effect reduction in the cost of goods obtained by contract.

5. *General Result.*—In our estimates for 1917-18 we have taken as the cost of gun ammunition a total of £413,000,000. If we had estimated the cost of the same quantities of this ammunition at the prices ruling in March, 1916, the total would have been £456,000,000 which shows a reduction of £43,000,000. This saving is notwithstanding the increased cost of labour which on a very very rough calculation is estimated to represent another £28,000,000. The net saving of £43,000,000 is due (1) to reduction in contract prices £10,000,000, (2) to more extended use of amatol and an increased proportion of ammonium nitrate in the amatol £21,000,000, and (3) to the supersession of brass by iron £12,000,000.

¹ Omitted. This subject has been dealt with in paras. 19, 20 above.

² Omitted: the effect of the statement is summarised in the text.

³ Omitted: see paras. 13-16 above.

⁴ Appended hereto, as examples have not previously been given.

APPENDIX TO EXHIBIT K.

FILLING CONTRACTS.

Particulars of Savings on certain Contracts made during six months ending 31st March, 1917.

Con- tractor.	Operations.	Original Price.	Unit.	Cost.	Price agreed as result of investigations.	Average weekly output.	Saving per annum if output maintained.
		£ s. d.		£ s. d.	£ s. d.		£ s. d.
A.	Filling Fuses ...	1 4 0	100	10 11-86	12 0	21,000	6,552 0 0
	Filling Gaiues ...	1 14 0	100	9 5-03	10 3	17,000	10,718 0 0
	Assembling Fuse to Gaiue.	18 0	100	14 5-86	15 11	15,000	812 10 0
B.	Making and Filling 1-7 Dets.	2 9 0	1,000	—	1 1 3	100,000	7,215 0 0
C.	Gaiue No. 2 ...	1 5 7	100	17 3-74	19 9	14,000	2,123 0 0
	Primers No. 1, M. II	11 3	100	7 5-35	8 7-75	22,000	1,513 0 0
	T. Tubes, Mk. N ...	1 1 11-50	100	12 4-74	14 1-50	35,000	7,128 6 8
D.	18lb. Block Charges	1 7 1	100	13 7	17 0	170,000	44,568 6 8
	10 mesh Amatol ...	1 0 0	100lbs.	4 7	8 6	34,000 lbs.	10,166 0 0
	C.E. Pellets for Gaiue.	1 0 10	100	12 11	13 6	45,000	858 0 0
E.	4-5" Cartridges Cordite.	12 15 0	100	10 9 3-57	11 15 0	11,500	5,980 0 0
F.	Filling 4-5" Lyddite Shells.	18 16 8	100	5 3 7	7 18 4	20,000	113,536 16 0
	Making and Filling 4-5" Cordite Cart- ridges.	26 7 7	100	12 1 7-25	15 0 0	20,000	118,341 12 0
	Assembling 4-5" Rounds.	4 12 5	100	1 17 0-75	2 5 0	20,000	26,656 13 4
	18 Pdr. Cordite Rounds.	7 2 7	100	4 14 3	5 15 0	5,000	3,585 0 0
	Primers ...	14 4	100	7 5	9 6	50,000	6,282 0 0
	T. Tubes ...	1 2 4	100	13 8-50	17 6	25,000	3,140 0 0
							£ 369,176 4 8

EXHIBIT L.

MINUTES OF PROCEEDINGS OF THE MINISTER'S SIXTH
FORTNIGHTLY MEETING WITH HEADS OF DEPART-
MENTS.

Ministry of Munitions, London, S.W.

Monday, 1st January, 1917.

The Rt. Hon. Dr. C. ADDISON, M.P. in the Chair.

The Minister: Gentlemen. Perhaps you might be interested to have a digest of the Report which has come in as to the German effort in the production of munitions. It appears that orders have been given to double a large number of munition factories, and the general programme aims at increasing the output of guns five times. One of their chief difficulties has been the shortage of labour, but they have called back a large number of skilled men from the colours, and they are greatly increasing the number of women employed in munition factories, and of course they are importing, as you know, a number of Belgian, Polish and French civilians. The machine tool trade in Germany is more active now than it has ever been before during the course of the War. Several new factories are now being got on with, apart from the additions to existing factories. At present their daily output of shell (I think this includes Austria too) is about half a million, and their programme is to double that daily output.

Colonel Milman: A million a day?*The Minister:* Yes.*Sir Alexander Roger:* Is that the programme of the Central Powers?*The Minister:* That includes Germany and Austria. Bulgaria and Turkey do not count much in shell production.*Sir Alexander Roger:* But that applies to both of them?*The Minister:* Yes. Apparently there is no shortage of raw material now, but what there may be when they double their shell output I do not know.*General Bingham:* Except ingredients for making high grade steel.

The Minister: I think they are short of tungsten, and some of those things, but they get them from Norway and Sweden, do they not? Our information is that it is not anticipated that they will be held up for raw material. They are converting a large number of factories in Austria to various purposes connected with the war—glass, earthenware, wood factories, and so on. During the last quarter they have increased the number of workmen at Essen by 25,000 or thereabouts. There is a great demand for molybdenite, and there is a shortage of rubber. However, I think that is a sufficient summary to show you gentlemen that the Ministry of Munitions has got to keep its coat off.

Now let me take the minutes of the last meeting, which, of course, have been circulated. I do not know whether anything arises out of them. Smoke mixture and chemical shell are our fortnightly friends. Have you anything to say on smoke mixture, Sir Alexander?

Sir Alexander Roger: The difficulty in connection with smoke mixture so far as supply is concerned has not yet arisen, because we have not had so many shells to take up the smoke mixture. We are still waiting for shell a good deal.

The Minister: How about the 4-inch bombs?*Sir Alexander Roger:* That has really turned the corner I am thankful to say. The supplies of 4-inch bombs ought to come in now as we anticipated.*General Bingham:* 5,000 a week.*Sir Alexander Roger:* It has not reached that yet, but it is very much on the way.*The Minister:* Have you any alternative smoke mixture which does not require aluminium?*General Bingham:* No, there is not one. We have tried zinc powder, but it is no good. None of the chemists can seem to see anything which will really take the place of aluminium and KNO₃ in the mixture.

The Minister: Is there any further progress in regard to diminishing the amount of amanol?

Mr. Price: It is a question of making arrangements for edge runners. The factories which make the amanol have not the edge runners which the present specification demands. S. of R. is going to see whether amanol made without edge runners is satisfactory.

General Bingham: We are actually getting stuff for trial.

The Minister: How much aluminium will that save?

General Bingham: As a rule you have 17 per cent. of aluminium in amanol, and we were trying to reduce it to 2½ per cent. This will not take it away altogether. I do not know the quantity it will save.

Sir Alexander Roger: We use about 2,500 tons a week of amanol.

The Minister: What is the proportion?

Sir Alexander Roger: 17 per cent. is 400 and some odd tons.

The Minister: It would nearly meet the smoke mixture demand, would it not?

General Bingham: At present, but I am perfectly certain that the smoke demand is going to increase very largely. They had a very successful go the other day with it.

The Minister: How is phosphorus going on?

Sir Alexander Roger: Quite well. I made a report to you about it to-day. The arrangements are well in hand, but you must not expect an increase in the quantity of phosphorus in less than 6 months.

The Minister: Oil supplies. I might report to the meeting that after seeing Mr. Burton Chadwick, Sir Frederick Black, Sir Ernest Moir, and other gentlemen, it was quite evident that there was a serious wastage of oil going on between the different Government Departments. Mr. Burton Chadwick and Professor Cadman put up a scheme which would result practically in the formation of one oil organisation, for distribution and making the best use of our supplies. One very illustrative fact emerged, which was that they produce, I forget how many thousand tons, nearly a hundred I think, in the Scottish shale oil distilleries, of creosote. Is that right, Sir Ernest?

Sir Ernest Moir: Yes.

The Minister: This stuff is sent mainly in tank wagons to the South of England, but at the same time the Admiralty is importing creosote from somewhere or other on the West coast and sending it by tank wagons to Aberdeen. It happens to be dealt with by two different departments. I think there are other illustrations of that.

Sir Frederick Black: Yes.

The Minister: They are not so much to the point as that, perhaps, but still we hope to get the oil organisation properly centralised. Are there any points arising out of the minutes of the last meeting which anybody wants to raise?

The first point on the agenda is the Report on Metal Supplies and Requirements. I am glad to say that I have received a report from the Metals Economics Committee, which, if it receives the benediction of the Ordnance Committee and is put into effect, should result in a saving of a very large mass of copper. I will not state the figure now in case we should be disappointed afterwards, but it is a very large amount. I will deal with these points on which I have one or two questions to ask. Brass. We will take with that the proposed Copper Order. It was suggested that we should have an Order, of which Sir Worthington Evans should put up to me a draft (which I am afraid I did not think went far enough) which proposed to limit dealings in copper and brass. Would it not be desirable to have some machinery for ascertaining stocks other than those which have been allotted priority certificates. The scheme as I understand it (Sir Worthington Evans will correct me if I am wrong) is that a man should declare the amount which he has other than that covered by certificates.

Mr. Llewellyn: We have altered that.

Sir Worthington Evans: It has been re-drafted this morning, and, in accordance with your view, it is now not merely a declaration of the balance, but it is a declaration of the gross total, showing separately how much has either been sold for the purpose of A. and B. certificate work, or if the copper is in the works of the refiner who also does the following processes, how much has been allocated for those following processes, A. and B. work, and then the balance. So that the returns made to you will show three things: the first section will be for A. and B. work other than in the owners' works; second, how much has been allocated in the owners' works for A. and B. work; and, third, the balance left. I think I ought to tell you that Mr. Budd thinks that that return, unless read with knowledge of the people who make the return, may become misleading, because it will be almost necessarily guess-work on the part of some of the people who make the return, but, on the whole, both Mr. Llewellyn and Mr. Budd finally agreed that the Order should be in that form.

Mr. Llewellyn: I think Mr. Fielding will probably be able to tell you better than I can, but there is a certain amount of copper which cannot be considered as available—I mean copper in the furnaces. They may return their stocks of so many hundred tons of copper, and yet in one furnace alone there may be 100 tons at the bottom which is never available. I think that is the idea Mr. Budd has in his mind.

Sir Worthington Evans: Read intelligently, the return will tell you what the three classes are, but read as totals it might be misleading.

Mr. Fielding: Each refiner will make a note "Such and such a proportion is in furnace bottoms and is not available", but the whole thing will not amount to 5,000 tons in the whole of England.

The Minister: What about manufacturers' stocks, Mr. Fielding? Do they amount to anything?

Mr. Fielding: Current stocks?

The Minister: Yes.

Mr. Fielding: All the refiners will have large stocks, and all the manufacturers will have stocks.

The Minister: You will get details of that?

Sir Worthington Evans: Yes the Order covers that.

Mr. Ellis: And the metal brokers as well.

Sir Worthington Evans: The dealers have already made a return, but I think this return will be really inclusive of previous returns. It will be a new return covering everything.

Sir Ernest Moir: What about the swarf in the shell factories?

Sir Worthington Evans: Whoever owns swarf has also to make a return.

Sir Ernest Moir: It is a difficult thing.

Sir Worthington Evans: It will be. You will have to read the return intelligently, because some of it will be more or less guess-work.

Mr. Llewellyn: That is a separate organisation. We have been dealing with copper swarf for months past.

Sir Worthington Evans: The Minister will get what he wants—a comprehensive return as of a date, and if that is read intelligently it will be all right. If you read it as gross totals without any deductions you might find it an overstatement of the actual available stock.

Sir Ernest Moir: Is this to be made monthly?

Sir Worthington Evans: Yes, and the end of the year is the first month. If that Order is approved, and I gather it will be approved, it will be in the Gazette to-morrow.

Mr. Ellis: Will it prevent people from making copper kettles?

Sir Worthington Evans: I am not sure what A. and B. work is, but I am sure it does not cover copper kettles, so I do not think the Order will.

Sir Ernest Moir: What about the copper equivalent in brass scrap? Is that dealt with?

Mr. Llewellyn: We had a long talk about this on Saturday, and a proposition is going to be put to you with regard to copper kettles and brass used in fenders, and things of that kind, the idea being

that Mr. Chamberlain is going to suggest that certain trades are not essential. That will automatically cut out some of those, but in the meantime with regard to brass which we are getting back now, we know we are getting a very large proportion, except in those particular trades. To give you an idea of the quantity of swarf which is coming back at present, practically a third, or over 1,000 tons per week of brass scrap and swarf is now being recovered and is going into munitions.

The Minister: We had a meeting on this in my room about a fortnight ago or thereabouts, and I remember that some of you gentlemen were appointed to draw up a scheme for recovering the whole of this brass scrap, ascertaining its amount, and so on. I think we had better defer this until they have put up their scheme. Now aluminium.

Mr. Llewellyn: With regard to aluminium, we have rationed it. We have sent out circular letters to each of the particular departments using aluminium, telling them we shall only be able to allow them so much.

Sir Frederick Black: They have not actually gone out.

Mr. Llewellyn: They have gone out of my department.

Sir Frederick Black: They are being printed. They have gone from you.

The Minister: These are the deficits for the first half of 1917. I will only give the thousands and not the odd tons. Brass, 28,000 tons; spelter, 11,000 tons; aluminium, 5,000 tons; lead, 70,000 tons; high speed steel 1½ thousand tons; wolfram and scheelite, 1,000; silica bricks, 775,000 units. What is a unit?

Mr. Edgar Jones: That would be the numbers.

The Minister: What is the limiting factor of these bricks—labour?

Mr. Llewellyn: I believe so, but Mr. Hunter is dealing with that.

Mr. Hunter: Yes, labour.

Mr. Duckham: Entirely labour.

The Minister: How is the scheme getting on for getting these reserve men transferred to silica brick works?

Mr. Kent: The silica brick position is that there is not a very big demand. I have not got the figures with me, but I think it is a few hundred.

Mr. Llewellyn: The point is that German prisoners have been put into ganister works, and they have relieved it.

Mr. Kent: The position with regard to ganister works and so on is very difficult, because the Home Office look upon that work as their pigeon and not the Ministry's. Ganister work is nearly always in conjunction with coal, and anybody who works below ground in coal mines, etc., is the Home Office's job and not the Ministry's. We did release a certain number of soldiers for working ganister, but as soon as it was done we were threatened with a general strike if the releases were not cancelled.

The Minister: Ganister is not the same as silica?

Mr. Kent: No.

Mr. Duckham: It is absolutely labour shortage.

The Minister: Is it the making up of the ganister into silica bricks, or is it in getting the ganister?

Mr. Hunter: I think it is both.

Mr. Kent: Yes, both.

The Minister: Have you any statement of what the shortage is on the ganister side of it?

Mr. Kent: I have, but I have not the figures with me. I can let you have them. With regard to the ganister works, and the iron ore mining, and so on, it is very difficult, because the Home Office say it is their work. I think it is a matter I shall have to bring before you.

The Minister: I think so too. Mr. Kellaway has made a note of it, because we cannot be held up like this. How about releasing men for silica brick works?

Mr. Kent: The names are all with the War Office, but the releases are very slow. I think all the men in the Home Forces have been released and the balance is overseas, and it is very difficult to get them out.

Mr. Edgar Jones: Mr. Hunter's department has done a lot lately to get labour-saving machinery in old works, and he is getting an increased output from the present works.

Mr. Hunter: We are doing all we can in that direction.

The Minister: Are these 775,000 bricks a big item?

Sir Worthington Evans: It is about 12 per cent.

The Minister: Now propellant supplies in the first half of 1917. How are shipments going on?

Sir Frederick Nathan: They are going on fairly well. Unfortunately we have had to put one boat which was very long overdue down as lost I am afraid. It contained about 150 tons of nitro-cellulose powder, and about 150 tons of acetone. The requirements of nitro-cellulose powder for Great Britain for the first six months of this year amount to 44,735 tons. Against that there is a gross total of 54,154 tons, or a net total, taking off 10 per cent., of 48,739 tons.

The Minister: You mean to say that is shipments and one thing and another?

Sir Frederick Nathan: That is what is due in this country during the first six months of the year. Taking the figure of 48,739 tons, it leaves a surplus of 4,014 tons, but on the other hand, 6,000 tons of the 48,739 are for the Allies. However, the Treasury have not given sanction for the allocation of that quantity to the Allies so that it would give us a surplus of 4,000 odd tons, but there would be a deficiency if the 6,000 tons go to the Allies of 2,146 tons on the total programme.

The Minister: How is that being made up—by Naval supplies?

Sir Frederick Nathan: That is the nitro-cellulose position.

The Chairman: I know. The Navy was going to give us something.

Sir Frederick Nathan: There is a surplus, if the Treasury decision holds, that the 6,000 odd tons allocated to the Allies is not to go to them.

The Minister: I think we should proceed on the assumption that it will be. How does the cordite help us out?

Sir Frederick Nathan: It helps us out in this way. The cordite requirements are 41,710, and the available supplies, after deducting 20 per cent., which is the usual figure based on experience, are 45,536 tons.

The Minister: Does that include Naval cordite?

Sir Frederick Nathan: That includes Naval cordite.

The Minister: The whole of the Naval output for the first six months of the year?

Sir Frederick Nathan: Yes. That gives a surplus of 3,886, so that the position a little more than balances. The Navy have not yet formally notified the arrangement, but I am told that they are going to agree to our receiving the output of all the Naval trade firms with the exception of Messrs. Curtis and Harvey.

The Minister: For the first six months of the year?

Sir Frederick Nathan: For the first six months of the year.

The Minister: You are getting it now, anyhow.

Sir Frederick Nathan: I have not seen the letter, but I do not think they have put any limitation on it.

The Minister: I thought they agreed to January and February.

Sir Frederick Nathan: We have 4,000 tons—that is already agreed, and we are getting it—but in addition to that, up to the end of June we should get another 5,600 tons from Naval capacity.

Mr. Layton: Does the 45,000 include the Navy?

Sir Frederick Nathan: The 45,000 include 5,636 which we estimate we shall get from Naval firms, with the exception of Curtis and Harvey, during the first six months of the year in addition to the 4,000 tons they have already allotted to us.

The Minister: I suppose our stocks of nitro-cellulose are about down to bone, are not they?

Sir Frederick Nathan: No, in the magazines and at the factories we have got round about a month or five weeks' supply.

The Minister: How much have you got, Colonel Milman?

Colonel Milman: I have not had time to look up the figures to-day, but I do not think we are very happy.

Mr. Price: The stocks have gone up.

Mr. Layton: They are better than they were in November.

The Minister: Are they better than they were when we had our horrid shock?

Colonel Milman: Yes.

The Minister: What about the proposed improvements. I remember that Mr. Quinan was quite hopeful about increasing the percentage of output from the existing works.

Sir Frederick Nathan: I have taken into account everything which we can expect to get.

The Minister: What sort of increase are you going to get by these new methods?

Sir Frederick Nathan: So far as we have gone, it looks as if we should get an increase of about 30 to 35 per cent. on the home output.

The Minister: Is all that 30 per cent. included?

Sir Frederick Nathan: So far as we can get it during the first six months. It will take time before the factories work up to their increased output. It means additional buildings, plant and so forth. So far as we can take it into account we have done so.

The Minister: The gist of your statement is, to put it in blunt English, that if we take nitro-cellulose powder from the Allies we should meet our programme, and if we take cordite from the Navy we meet our programme in cordite.

Sir Frederick Nathan: We more than meet our cordite programme; we get about 4,000 tons over.

The Minister: That is not much over six months.

Mr. Price: There is 20 per cent. margin on that.

The Minister: That is the most hopeful feature—you have deducted liberally.

Sir Frederick Nathan: Experience tells us it is necessary.

The Minister: I think, as a matter of fact, you are getting more than 80 per cent.

Sir Frederick Nathan: I think until last month we only got about 80 per cent., but the total for the year up to the end of November was about 85 per cent.

The Minister: Are you creating any special organisation to ginger up the people?

Sir Frederick Nathan: We are keeping a very close watch.

The Minister: Is there any special staff doing it?—I think there ought to be.

Sir Frederick Nathan: Yes. We have been disappointed with the Gretna output. Gretna hopes, with reservations to meet their maximum of 800 tons by June next.

The Minister: What is Gretna doing now?

Mr. Price: It turned out 600 tons this week, but that, of course, is above normal. At present they are doing over 500 a week now, and they returned 600 tons to Sir Frederick this week.

The Minister: What is the maximum.

Mr. Price: 800 tons is the maximum, which we are putting up now to 1,000 tons.

The Minister: That will not be until when?

Mr. Price: June next.

Sir Frederick Nathan: They hope to work up to 800 tons by June.

The Minister: I must say I do think we must bully the Treasury on nitro-cellulose powder, because we are really only meeting our requirements by taking it from the Allies.

Mr. Henriques: That includes the authorisation which you gave me this morning to ask for further provision.

The Minister: Did it include that too?

Mr. Henriques: Yes, 750 tons a month from Gretna.

Sir Frederick Nathan: That is to exercise an option.

The Minister: I know we have had the option.

Mr. Henriques: We have a renewal of the Treasury assent to that.

Mr. Price: The Allies will certainly expect you to give them those quantities.

The Minister: I am sure they will.

Colonel Milman: I am sure we shall not be able to spare anything for the Allies.

Mr. Layton: It was bought for the Allies.

Colonel Milman: For about eight weeks now I have not been able to fill more than, on an average, two-thirds of the cartridges.

The Minister: How many tons of propellant is required for 1,000 18 pdr. shell?

General Bingham: 1,500 lbs. as near as makes no matter. It is 1-6 lbs.

Colonel Milman: It is only about $\frac{1}{3}$ rd of a ton.

Sir Ernest Moir: There was a rumour that by adopting new process Gretna was going to increase its output largely.

The Minister: That is all included. Unfortunately the 30 per cent. increased output is included.

Sir Frederick Nathan: No, not in the case of Gretna. I have only taken the actual promises which we have received from Gretna.

General Bingham: When is your new nitro-cellulose factory coming into operation. Do you put it down as eight months?

Sir Frederick Nathan: Not till October.

The Minister: How are your stocks of nitro-cellulose powder. Have they gone up a bit?

Mr. Price: I think they have been going up, and I think Colonel Milman has been filling absolutely up to programme, if not a little more.

Colonel Milman: I repudiate the soft accusation.

The Minister: We may want Colonel Milman to go even beyond that. That is what is at the back of his mind.

Mr. Price: I do not know where you will get the nitro-cellulose from.

Mr. A. Duckham: Might I ask Sir Frederick to distinguish between rifle and gun cordite.

Sir Frederick Nathan: My figures are gun cordite: there are very adequate supplies of rifle cordite. We have over 1,000 tons in stock, which has been growing up gradually from the beginning of the year, and we have a large stock of nitro-cellulose powder too.

General Bingham: And you have 900 million rounds in this country.

The Minister: Now the high explosive fuse. I had a meeting with your officers this morning, Colonel Milman, on the filling of high explosive fuses. I take it that the reason it declined was because you had not the fuses to fill or did not like to take them out of stock.

Colonel Milman: About ten days ago I think the stock of empty fuses was 1,200,000. We cannot possibly fill at that rate with that stock.

The Minister: I see on 16th December it was 1,800,000 available for filling.

Colonel Milman: Yes, it has gone up a bit. My figures were either 2nd or 9th December.

The Minister: We had a special meeting with your officers, Sir Glynn West and others on this subject this morning, and it was adjourned until Wednesday, so that I do not think we need take up the time of to-day's meeting with it.

Shell steel supplies. I am very sorry to see that it is a minus quantity in most things. How is the labour position getting on?

Mr. Hunter: The labour position in steel works?

The Minister: Yes.

Mr. Hunter: May I speak generally to begin with. Owing to the Christmas holidays we have not had a return, and all I can tell you generally is that the average steel production for the last six weeks was, roughly, nearly 37,000 tons per week against Sir Glynn West's programme of in the neighbourhood of 32,000 tons per week.

The Minister: Home production?

Mr. Hunter: Yes, that is leaving French steel and Admiralty steel out of it. The output of steel for shell is now about 10,000 tons a week better than

it was at the end of July. That is a general statement.

Now our labour is very badly off. I do not think the labour which has been supplied to us from the Colours can be depended on—certainly not for quality. Neither can we get the numbers of men back which we were led to believe and hope for.

The Minister: You have got a good many more lately, have not you?

Mr. Stephenson Kent: Yes, but Mr. Hunter is putting forward the fact that the labour which has been supplied—Army Reserve Munition Workers—is of no great practical value in blast furnaces. I do not think I have had anything very much from Mr. Hunter as to the labour which has been supplied for steel works.

Mr. Hunter: The same thing applies.

Mr. Stephenson Kent: The only thing is that we have arranged with the War Office for tin-plate mill workers as a reserve for steel works, but I do not think we can draw on them very much because a great deal of that labour is engaged on important work to-day. Those men are to be called and passed for Army Reserve W.

The Minister: You have placed a good many lately, but they are not very good when you have got them.

Mr. Stephenson Kent: That must be so. These men are not fit for General Service; they are in B2 and 3, C2 and 3 classes, and they will not be very strong physically or very fit.

The Minister: Of course these people will have to learn to make good with second-rate material like everybody else has had to, but I am afraid that is no comfort to Mr. Hunter.

Mr. Hunter: The steelmakers are alive to that, and they are making the best use of the men offered to them, but we cannot blame the steelmakers if they cannot get these men to make steel, because they are from a very unfit class. What we have to recognise is that our production of steel will never increase unless we do get more labour than we are getting just now.

Mr. Kellaway: Is it more labour you want or labour of a different class?

Mr. Hunter: Both. I put up a minute to you a fortnight ago.

Mr. Kellaway: I asked you to let me have a statement of the requisitions you had made on the Labour Supply Department and the extent to which they had been met. I have not had that yet.

Mr. Hunter: I understood it had been sent; I will take that up.

Mr. Stephenson Kent: As a matter of fact, I think so far as numbers go, we shall satisfy the immediate demands of the blast furnaces, and I think we shall go a good way towards satisfying the demands of the steel works with regard to numbers, and I hope a bit more in regard to quality in the steel works.

Sir Ernest Moir: Would it not be a good thing to offer a bonus on the output? If the gross tonnage was increased the wages would go up.

The Minister: They get about £15 a week as it is now.

Mr. Stephenson Kent: They get colossal wages.

The Minister: They are on piece work, are not they?

Mr. Stephenson Kent: Yes.

Mr. Llewellyn: I think the more money you give them the less they do.

Sir Alexander Roger: I think you would probably increase the output if you decreased the pay.

Sir Ernest Moir: I mean a special bonus on output.

The Minister: We did discuss that. These fellows get bigger wages than almost any other people in the United Kingdom, do not they?

Mr. Stephenson Kent: Yes.

Sir Ernest Moir: If they can earn it, it shows they are worth it, if they get a special bonus for output.

Mr. Stephenson Kent: That is the system of payment in blast furnaces.

The Minister: Mr. Hunter, how do you stand with regard to the Navy. Does the Navy take any shell steel from you?

Mr. Hunter: Yes.

The Minister: How much?

Mr. Hunter: Between two and three thousand tons a week.

The Minister: It is not much. What proportion of the total steel output does shell steel form?

Sir Ernest Moir: The present output is 4,000,000 tons I think.

Mr. Hunter: I think it is nearly a half.

Mr. Layton: Between 40 and 50 per cent.

Sir Glynn West: You are speaking of home production, Mr. Hunter?

Mr. Hunter: Yes.

The Minister: Is there any other purpose for which steel is made? Is there any other steel which is sufficiently akin to shell steel that you could make encroachments upon it?

Mr. Hunter: I do not think so.

Mr. Kellaway: What is your present unsatisfied demand for labour?

Mr. Hunter: Do you mean for pig iron, blast furnaces, steel works and ore mines?

Mr. Kellaway: Yes, but give them under the different headings. You have put up requisitions for men for getting out the ore, for working in blast furnaces, etc. What is your demand which has not been satisfied?

Mr. Hunter: You mean the number?

Mr. Kellaway: Yes.

Mr. Hunter: I should think 5,000 or 6,000 men at the moment.

Mr. Kellaway: Does that cover all of it?

Mr. Hunter: I should think so.

Mr. Kellaway: I should think you would get them out of the tin-plate works.

Mr. Stephenson Kent: The demand on 16th December was 3,706; the greater bulk of that has been satisfied.

The Minister: I should like to ask Sir Glynn West whether he has anything to say on the question whether we could use other classes of steel?

Sir Glynn West: I think there must be a lot, if you give the steel up. We have to give up steel every day for other manufacture. Every ounce of steel which is made would do for shell steel if it was made in monobloc.

Sir Ernest Moir: The suggestion made the other day was that a large number of 60 pdr. Shrapnell shell might be returned and re-moulded.

The Minister: We have been on to that, Sir Ernest.

Sir Glynn West: Here is a question I have before me now. The question of steel supplies is very bad, and then there is the 6-inch Shrapnell. I have taken the matter up with the Steel Department and they inform me that one large source of supply, Messrs. Brown Bayley & Co., have produced nothing for four weeks, and they have now discovered that it is due to the Admiralty having commandeered the whole output, 200 tons a week, for aeroplane engines.

Mr. Hunter: That is not exactly the thing. It was two or three days more or less before we knew that Messrs. Brown Bayley were not going to fulfil their obligations in respect of that shell steel. They got official sanction from here, I should think about two months ago, to put up extensions to their works, and also to give the Air Department another class of alloy steel to the extent of 30 or 40 tons per week. They began making alteration to the works, which were sanctioned, but they did not tell us if it was going to affect the shell output at all. They never mentioned it. They led us to believe they were going to meet their obligations, but they have not done so. Mr. Jacks, who is dealing with aircraft steel, is in Sheffield to-day and we have wired to him to go into the question with Messrs. Brown Bayley. Another complaint from the same firm is that the breaking plant has broken down. Altogether our dealings with Messrs. Brown Bayley have been most unfortunate. It is not the fault of anybody in this building; it is the way in which they have

handled the business themselves. You can take it that arrangements will now be made so that the unpleasantness does not occur again.

Sir Glynn West: There are lots of sources of supply of steel which, if you cut them down, will make shell steel.

The Minister: What arrangements are there to collect the waste steel and melt it up again? Is there any organisation dealing solely with that, Mr. Hunter?

Mr. Hunter: Only in large quantities. The question of gathering up the steel in London has been raised from time to time. I do not know how we could get an organisation to deal with that; it would take a very long time to get it.

The Minister: What do you say to that, Mr. Fielding?

General Bingham: We have been considering it while Mr. Fielding was away.

The Minister: Of course I am a layman in these matters, but I cannot help thinking that there is a good deal of scrap metal which could be used.

General Bingham: We are putting up a scheme.

Sir Ernest Moir: It has come already: it is to have a Director of Scrap.

The Minister: It is the general scheme you mean?

Sir Ernest Moir: We want to have somebody who will go round and not only see that the scrap which comes from swarf is used but that all other scrap is used.

The Minister: I am inclined to use the Local Authorities.

Mr. Edgar Jones: I understand there is more steel scrap than you can use.

Mr. Hunter: In certain works, yes.

Sir Ernest Moir: We want to find a way to use all the scrap. There must be about half a million tons of shell steel scrap in different parts of the country and large amounts of swarf.

Mr. Edgar Jones: A lot of shell discard steel is being exported.

The Minister: Who is allowing it to be exported?

Mr. Edgar Jones: I understand there is no other use for it.

The Minister: Oh, no. What do you say to that, Mr. Maclellan?

Mr. Maclellan: I am not aware of that.

Mr. Edgar Jones: The instruction from your Department is that you have a surplus of shell discard steel in this country, and, therefore, we can allow the export of it.

The Minister: You may take it from me that we will not have any more shell steel discard exported. Do not give any more licences.

Mr. Edgar Jones: I will stop it at once, but those are the instructions I have.

Sir Ernest Moir: I think you will have to appoint the Scrap Director quickly.

Mr. Charles Ellis: I am sure every manufacturer uses as much scrap as he thinks he can safely, but certain firms have, no doubt, discovered that they can use a larger percentage of scrap in their furnaces than others. I think if you had somebody of intelligence at the head of such a Department as is suggested, you would get the best brains of the country together and find out what percentage of scrap the more important firms are using and how they manage to do it.

The Minister: Some weeks ago Mr. Hunter made the people in Scotland who were using, say, 15 per cent., use 30 per cent., or something of that sort. I may have got my geography wrong, but that is a detail.

Mr. Hunter: In reference to what Mr. Ellis said, I think I have a fair amount of intelligence. We have taken up the question with some of the steel-makers, and we have taken it up so severely that we threatened to close steel works because they would not use anything but pig iron in their furnaces. We have insisted upon that very strongly. Formerly they used somewhere about 10 to 15 per cent., and now they are up to 50 to 60 per cent. We have impressed this on all the steel makers we have come in contact with. We have had meetings here

and impressed on them that they must use scrap and use a proportion up to somewhere about 70 per cent. Some of the gun people, such as Armstrong, Whitworth & Co., are using shell borings from the works without any pig iron at all.

Sir Glynn West: They have a special process for that. We put it into a basic furnace and convert it, and then put it into acid, but it is very expensive.

Sir Ernest Moir: It is quite a job for somebody to organise.

The Minister: I should have thought you could have melted the lot up and made something of it. I know you have brought a lot of people up from 10 to 30 per cent., but I am glad to hear it is 60 per cent.

Mr. Hunter: In those particular instances it was 60 per cent.

Mr. Edgar Jones: It seems necessary to get somebody to go into the technical questions and make the makers use shell steel discard. Some firms say they cannot do anything, whereas other firms do do something.

The Minister: Anyway, we will not have it exported.

Now Iron Ore Supplies. Do you know how shipments are going on?

Mr. Hunter: It is a little bit out of my Department, but the position to-day is a little bit worse than it was. It is almost impossible to get ships to carry it.

The Minister: Is the neutral tonnage going out of the trade?

Sir Ernest Moir: Mr. Burton Chadwick is trying to make arrangements to insure neutral tonnage. A good many ships are being forced to go back to port under the threat of being sunk by submarines. We had no intimation that you wanted to go into this question, or we should have had somebody from Mr. Burton Chadwick's Department here. I know he is very disturbed about the shipping situation. I should think he is not getting two-thirds of the ore from Spain which he should be getting.

Mr. Phillips: I can give you some up-to-date figures on that. At the present moment we are 160,000 tons in arrear on Mediterranean-Spanish ore coming into this country.

The Minister: Is that weekly?

Mr. Phillips: No, total arrears—what we ought to have received up to now. That is mainly because it comes in Italian ships, and we had a programme from the C.I.R. as to what its ships would bring, but that programme is utterly unreliable. It is nothing to do with submarines at all. Some of the boats have been 35, 42, 49 and even 73 days late in sailing. You cannot work on a programme like that.

Sir Ernest Moir: What proportion of the iron ore we ought to get from Spain is in now?

Mr. Phillips: It is going up, but I could tell you exactly what it is.

The Minister: It is 600,000 tons a month, is it not?

Sir Worthington Evans: 175,000 tons a week, I am told.

Mr. Hunter: The maximum is 175,000 tons a week.

The Minister: That is 700,000 tons a month. The average weekly tonnage for the month of December is 99,940 tons.

Sir Worthington Evans: I find in the Secret Report that for the seven weeks up to 16th December the tonnage chartered was an average of 111,964 tons, so that it has gone back.

The Minister: How about the development of iron ore at home. Sir Worthington Evans, you have been going into that.

Sir Worthington Evans: Before you leave the insurance question, there is no doubt that it did operate with the Norwegians three or four weeks ago. A scheme was got together for re-insuring the Norwegian Insurance Offices, because the offices were refusing to insure Scandinavian ships as it was not

a paying proposition. The scheme which was put on foot with regard to Norway was not in connection with Munitions but another Department. It seems to me you want something of that sort with regard to Spain.

The Minister: I think we ought to put through some scheme of insurance. It is very necessary to get the ore over.

Sir Worthington Evans: I have not the least doubt the neutrals are afraid and will not go into the trade, and as time goes on it is likely to get worse.

The Minister: You might take it up and see that this is gone on with, Sir Worthington.

Mr. Hunter: Spanish ships carrying iron ore have gone out of the trade.

Sir Worthington Evans: Do you attribute that to the fear of submarines.

Mr. Hunter: Entirely.

Sir Worthington Evans: The only possible way is to cover their risk.

Mr. Hunter: Some months ago when submarine activities began I put up a suggestion that in order to keep these ships in the trade, the Home Government should guarantee the crew, say, £100, if a Spanish ship was lost by torpedoing. That was lumped up for three or four weeks. I pressed it, and then I was told it was too big a question to go into.

The Minister: We will go into it.

Mr. Hunter: The result is that all the ordinary Spanish ships have gone out of the trade.

The Minister: I would rather you went into this.

Sir Worthington Evans: Let us go right at it. We want the cargoes here.

The Minister: Do you think it is necessary to have a scheme of insurance, Mr. Duckham?

Mr. A. McD. Duckham: Yes.

The Minister: How about the development of iron ore in this country. There are various schemes for increasing our home output: how are they going on?

Mr. Hunter: With regard to increasing the production in the Cumberland and Lancashire districts, if the necessary labour can be obtained it is estimated that an increased output of over 400,000 tons per annum of haematite ore can be obtained in the near future—say in six months.

The Minister: What sort of labour is required?

Mr. Stephenson Kent: The release of iron ore miners.

Mr. Hunter: We want to get German prisoners for this. I have taken the liberty of ordering half a dozen ironstone steam shovels, and we propose to give these machines to whoever is ready to work them.

Mr. Stephenson Kent: I understand that all the German prisoners in this country are allocated to agriculture, because nearly all of them are non-commissioned officers, and there is an understanding that non-commissioned officers shall not be used except on the land, or something to that effect. Secondly, I understand the Cleveland Iron Ore miners are working short time at the present moment.

The Minister: Why?

Mr. Kent: I should like to know.

The Minister: Can you throw any light on that Mr. Hunter?

Mr. Hunter: I cannot.

Mr. Kent: We have had very serious complaints from the district. The men want to leave and go to coal-mining, where they would earn better wages.

Mr. Hunter: I heard they would not work more than 8 hours.

Mr. Wolfe: I can explain that I think. We have been having a great deal of trouble in attempting to persuade the Cumberland Iron Ore miners to work two extra shifts per week. Ultimately the arrangement was that they were to go on the 3 shift system if the labour could be found. Mr. Hunter's figures, I suppose, are based on the assumption that

they will work on a 3 shift system. The owners told us they were going to put the 3 shift system into force. I rather fear that the miners are not expecting to put the 3 shift system into force at all, but are waiting to make some bargain about the make-up.

The Minister: That throws no light on Mr. Kent's statement that the men are working short time.

Mr. Llewellyn: The mining in Northumberland and Cumberland districts is underground, but in Lincolnshire it is surface mining. It means taking away the subsoil and then you have the lode of the mine under that. That part of the work could be done very well by German prisoners, but you would never get the German prisoners to work up in Cumberland.

Mr. Kent: No.

The Minister: All the Cumberland mines are underground, and there you say they are working short time.

Mr. Kent: So I understand. I will have the papers sent up.

Sir Glynn West: Is it not possible that they have started the 3 shift system and they call that working short time?

Mr. Kent: No. They are getting very poor pay as compared with the coal miners.

The Minister: I see the deliveries of copper bands are getting very short. Some of the works have been greatly held up by non-delivery.

Mr. Llewellyn: We are tremendously in arrears with our shipments. I do not know whether she is lost or not, but there is one ship with 1,000 tons due nearly a week ago.

Mr. Phillips: She is lost I am afraid.

The Minister: Is that the one the raider stopped?

Mr. Phillips: Yes.

The Minister: She sunk three munitions ships, did she not?

Mr. Phillips: Yes.

Sir Worthington Evans: Have they caught her?

Mr. Phillips: No.

The Minister: That only increases the urgency of going on with the Copper Order.

Now 6 inch shrapnel, Sir Glynn West. I see the deliveries of empty shell are only about half the requirements?

Sir Glynn West: Yes. We are committed to one firm for 5,000 a week. The original demand was 2,500, but the firm have never got further than 2,500. I got through to them on the telephone on Saturday about it, and they said they hoped to get up to the full 5,000 within a fortnight from now. They ought to have done much better.

The Minister: Who are they?

Sir Glynn West: Harper, Son & Bean.

The Minister: They are pretty good people, are not they?

Sir Glynn West: Yes, but they had great difficulty with the steel. We are short of steel.

The Minister: I see, Mr. Ross Skinner, that the stock of uninspected shell on 16th December was over 16,000, and there have been less than 500 accepted during the last fortnight.

Mr. Ross Skinner: The stock on our hands is 5,000, but inspection has been delayed owing to lack of gauges. The stock manufactured at Harper, Sons & Bean has been consigned to Woolwich for inspection, and examination commenced on 16th December. About 12,750 shell have been despatched to Woolwich, and to-day 4,000 of those have been inspected. There are 4,000 out of the 12,000 since received. I think all we have on our hands will be put through at a very early date.

The Minister: I see the manufacturers were choked up with shell, but it was a question of gauges. Have you got them now?

Mr. Ross Skinner: Yes. Now there are two sets, and they will be pushed through.

The Minister: I see the supply of copper for quick firing cartridge strip has also dropped. Birtley Cartridge Case Factory will probably be brought to a complete standstill. What do you say to that Sir Glynn?

Sir Glynn West: It is lack of copper. They make their own strip. I had four or five telegrams saying they were coming to a standstill if they did not get more copper.

Mr. Llewelyn: They have not actually stopped.

Sir Glynn West: No, you got some copper down to them. We borrowed copper from different places round about, and made the best we could of the different stocks. There has been no absolute stoppage.

Mr. Duckham: We have had a stoppage in making strip, due entirely to shortage of copper.

Sir Glynn West: If you got the copper for Birtley, probably you would be short of copper somewhere else.

The Minister: Is it not a question of shipment at the moment? We have covered ourselves in copper, have not we?

Mr. Llewelyn: I think we have 9 to 10,000 tons awaiting shipment now, and the Russians have about 9,000 tons, and the French about 31,000 tons. The French are absolutely starved for copper. We cannot get it across. One of our Australian boats has gone down too.

Mr. Duckham: Is there any chance of conveying important stuff like that?

The Minister: The Admiralty seem to say that the system of conveying across the Atlantic is not a very practical way of doing it.

Mr. Hanson: I thought the French copper was not waiting because there were not any ships but that the French could not get any ships.

Mr. Llewelyn: It was want of shipping.

Mr. Hanson: I thought we were negotiating with the French an arrangement that if they would hand it over to us we would ship it.

Sir Glynn West: A man came to me and offered 2,000,000 blanks for 18-pounds provided we supplied the copper over in America from the stock we had there.

Mr. Duckham: You have no more chance of getting your blanks shipped than your copper shipped.

Sir Glynn West: We should get the shell over.

Mr. Llewelyn: We have any amount of copper on order and any amount awaiting shipment, but we cannot get it.

Sir Ernest Moir: What about insurance?

Mr. Hanson: We take the risk. There is a shortage of railroad cars in the United States, but Sir Ernest Moir's organisation telegraphed to say that the Christmas holidays had greatly interfered with shipping generally, and that interference would continue for about ten days to come, after which they expect to get going again.

Mr. Llewelyn: We sent Mr. McConnell out over a month ago to try and get shipments boosted up. Apart from copper, we are about 9,000 tons of brass rod in arrear.

Mr. Phillips: It would make all these things easier for the Admiralty if I were informed a little earlier if shipping is wanted. They are suddenly called upon to provide tonnage for 30,000 tons of steel, and now they are asked to provide shipping for 45,000 tons of steel rail from Canada. It is rather unreasonable to expect them to provide it when called upon quite suddenly. I think there should be some machinery to advise it.

The Minister: I thought our Overseas Transport Department had cognisance of all these things.

Mr. Phillips: They were not told about this until right up to time: they were not told about the spelter till right up to time.

The Minister: Does every Department send to you their requirements for shipping some months in advance?

Mr. Phillips: No.

Mr. Brand: As regards Canada, it is arranged direct between Mr. Harris, the Admiralty's representative in Canada, and the Admiralty. He informs them what the Munitions Board intends to ship and they provide the transport. These rails, as you know, came on them suddenly, but they are now looking into the matter over there. I think

the most convenient and best way to arrange it is to let the Munitions Board inform the Admiralty's representative out there.

The Minister: What do you say to that?

Mr. Llewelyn: Might I suggest that you sent in for some sort of priority order for shipments? We cannot very well tell them when we have got the copper there it is the other side who know about it. We can only tell them when it has accumulated. Take the case now of calomines, which is in competition with iron ore. It is only about 4,000 tons a month, but we have two furnaces in South Wales which have been put out because we cannot get them. I think there should be some sort of priority committee which would say which is the most valuable commodity to be brought forward because it is going to be a very serious matter if we are going to be stopped for copper. With all the good intentions in the world, we cannot help it as it is now.

Mr. Price: You will remember that you authorised us to buy sulphur at short notice. If we had waited to get the Admiralty's consent, I think we should still have been waiting to get sulphur.

The Minister: Three-inch gun cartridge cases. I understand that numbers of these are splitting. I do not know whether you can throw any light on this, General Bingham?

General Bingham: I have not heard of this particular case.

The Minister: They are three-inch 20-cwt. anti-aircraft guns.

General Bingham: I cannot tell you anything about them.

The Minister: Perhaps you might look into that.

Register of plant. The increasing difficulty in obtaining permanent way track, locomotives, and steam cranes, new or second-hand, has been seriously felt. During the past week one suitable locomotive and one travelling crane have been commandeered under the Defence of the Realm Act, but this piecemeal procedure is not conducive to satisfactory results. Strong representations have been made in favour of action by the Ministry on the lines taken in connection with hay and wool supplies, namely, by enforcing a return by owners of all such materials, and a veto on dealings in such materials, without the consent of the Ministry. You have already done that in regard to locomotives.

Mr. Edgar Jones: That is in operation for cranes now; the Machine Tool Department did that long ago. They control every crane that is made and its destination. They control second-hand cranes, too.

The Minister: We do that with railway materials, too.

Mr. Edgar Jones: Yes.

Mr. Llewelyn: There is a line in South Wales which was only put down 10 years ago, which has practically no traffic whatever. The whole of that line could be picked up.

The Minister: I think they are going to pick it up.

Mr. Llewelyn: There is the whole of the rolling stock as well.

The Minister: The Railway Executive have undertaken to pull up 200 miles of line and ship it. They are also providing 20,000 railway trucks. As a matter of fact, we requisitioned 30,000 railway trucks, 10,000 of them from private truck owners, and a large number of locomotives. We made an arrangement whereby the railway companies will have a complete list of all their orders for making any of these things and they cannot place orders without our consent. I think we are getting that tightened up.

Mr. Edgar Jones: I think the time has come to absolutely control railway materials in the same way that cranes are controlled. General railway material is not controlled now under any definite Order; it is only controlled with regard to supplies. Big firms like, for instance, Hadfields can go on casting wheels without any system of control. I think it would be a good thing to get out a scheme of control in connection with the whole of railway supplies under Sir Ernest Moir's Department.

The Minister: What do the steel people say to that?

Mr. Maclellan: Do you mean the disposal of wagons and locomotives?

The Minister: Yes, the making of them.

Mr. Edgar Jones: The making of wheels and things of that sort.

Mr. Maclellan: For the supply of the railways of this country?

Mr. Edgar Jones: Control all railway material generally. We shall have to let India have some to keep them going.

The Minister: I think this is a detail which might be discussed with the experts before we take it up with the whole meeting.

Sir Glynn West has one or two points to raise with *Mr. Ross Skinner*.

Sir Glynn West: I was asking *Mr. Ross Skinner* about the difference between the two columns in the detailed Weekly Report. One column says, Stock in the hands of Inspection Department, and then there is another column which shows the stock in bond. When the shell are in bond I have nothing more to do with them. I notice that in a great number of cases there is a very big difference—sometimes there are 10 times more shell in hand. I should like to know what the difference between the two columns is.

Mr. Ross Skinner: In very many cases the difference is that there is home and foreign stock, and the two are added together in the one column.

Sir Glynn West: When a thing is in bond I have nothing more to do with it.

Mr. Ross Skinner: I think you took as an instance the 6-inch shell, of which there are about 350,000 in stock; 178,000 is home stock which has to be inspected, and the balance of 158,000 is foreign stock.

Sir Glynn West: I cannot do anything more with them.

Mr. Ross Skinner: They are there to be put forward when somebody calls for them.

Sir Glynn West: But when they are in bond I have nothing to do with them.

Mr. Ross Skinner: They must appear somewhere; they must be taken over.

Sir Glynn West: You do not mean they are not available?

Mr. Ross Skinner: No, they are available.

Sir Glynn West: That is all right, so long as the second column shows they are available.

Mr. Layton: Is the smaller column home shell only?

Mr. Ross Skinner: Yes.

Mr. Layton: Should that not be stated?

Mr. Ross Skinner: It is all uninspected, home and foreign.

Sir Glynn West: I do not know what I have to do with the big column. Can I do anything for you?

Mr. Ross Skinner: I think you can.

The Minister: I think this seems to be a domestic question which we will not go into at this meeting.

EXHIBIT M.

TRANSFER OF RESPONSIBILITY FOR DESIGN.

Memorandum on the Transfer of the Ordnance Board and Inventions Branch from the War Office to the Ministry of Munitions.

(1) Experience at the Ministry of Munitions has shown that the expeditious and efficient supply of munitions requires the transfer of the functions of the Ordnance Board and the War Office with respect to design, specification, provision of samples, testing and so forth to the Ministry of Munitions, with a somewhat clearer definition of the functions of the two departments being obtained. Serious delays have already occurred in the supply of essential munitions owing to the divorce between design and manufacture. The Munitions of War Act contemplated such a transfer as is suggested.

The arrangements should, I think, be based on this understanding. The War Department should deter-

mine what forces it should employ and with what munitions and to what extent they should be equipped, and the Ministry of Munitions should be so staffed and organised that it can deliver to the War Department in a fit and tested condition and ready for service the munitions asked for.

Every day that passes, questions, small or large, arise in connection with the production of munitions which require reference to the Ordnance Board; in great part they are questions arising out of difficulties of manufacture demanding adjustment in alteration of design in some form or other, such as the type of a detonator, modification of a fuse, gun carriage and so on. Sometimes they are suggestions for improvement which occur in the course of manufacture. The settlement of these things should be under the same authority as that which is responsible for the manufacture and supply of the goods concerned, this expert branch (being in daily working touch with the different departments of the Ministry of Munitions and the Ordnance Department) should be augmented by the addition of expert representatives responsible for bringing up and obtaining determination, as quickly as possible, of the many questions which arise from the different supply branches. The setting out of design, the drawing up or altering of specifications, the provision of patterns and the final testing of the completed articles are essentially processes belonging to manufacture and supply. To have the first processes of supply outside the department responsible for supply is bound to lead, with the best will in the world, to delays and difficulties.

An important point also arises out of the fact that the Ordnance Board necessarily has its own programme and procedure, which it, of course, arranges for its own convenience and apart from the daily needs of the Ministry of Munitions. If the manufacturing problems with which the Ministry finds itself confronted daily are to be promptly dealt with it is evident that the work of the body dealing with them should be arranged in accordance with the nature and quantity of the questions arising. The divorce between the working of the two departments does and must lead to delay in the settlement in appropriate order of the matters demanding determination in the interests of expeditious manufacture.

Illustrations in support of this point can be offered if desired. The slow progress in deciding upon the adoption of the French fuse is a case in point. This fuse requires only about one-eighth of the brass needed for the British fuse with a corresponding saving in cost and amount of material, besides which it is more economical of labour and filling material. Our own fuse and gaine rest under grave suspicion of being dangerous to guns and gunners, and the point raised by the bursting of our guns eight weeks ago has not yet been settled. The French fuse, on the other hand, has proved during recent operations that it can be depended upon.

The Ministry has kept in close touch with the War Office in regard to all matters of alterations of design, etc., and fully recognises that there are points of military use, etc., which the War Office must decide, but we cannot fail to recognise that numbers of questions have arisen either out of manufacturing difficulties or military experience which could have been settled more expeditiously under more adequate machinery.

Questions relating to guns and gun carriages, fuses, detonators, gaine, design of shell, use of particular mixtures of explosives, could be settled under a revised procedure much more expeditiously than at present.

The experiments to determine the cause of gun bursts have been, no doubt, of a very difficult nature, but they have involved throughout, very largely, questions of manufacture and material. The Ordnance Factory has, no doubt, advised on the manufacturing points, but the Ministry throughout has not been represented directly in these matters. The experiments have been in hand for two months, but the Ministry has not yet been definitely informed

of the final results, and supplies are being delayed until questions of type of fuse or gain are definitely settled.

We have had much difficulty also and some change of opinion as to details of the specification of steel for shell.

I suggest that the work of the Ordnance Board and the Inventions Department of the War Office should be incorporated with the Ministry of Munitions and that such an Ordnance Department should be strengthened both in staff and equipment to cope with the enormous amount of work which has fallen to it. The organisation should be of such a character that the War Office can rely, without question, upon its decisions. With this transfer should pass the Research Department and the proof butts and ranges which are required for testing and experimental purposes.

Further Notes relating to the Ordnance Board, the Inventions Department, the Woolwich Departments, etc.

My experience since the formation of this Ministry has shown clearly to me that unless the present line of demarcation between the functions of the War Office and the Ministry of Munitions is further adjusted on the lines indicated below, there will be serious delays in the delivery of essential munitions to the Army. Such delays have already occurred during the past three or four months owing to the division between design and manufacture.

It is essential that the War Office in the matter of artillery and munitions of war shall concentrate its energies, and have time to devote to further thought upon such matter of high importance as:—

(1) The best distribution and use of munitions in the Field:

(2) The training, organisation, and distribution of personnel. The War Office must, of course, maintain its responsibility for the general nature of the weapons and equipments required, and for concurring in such alterations as might affect their use in the Field or the training of the personnel.

The setting out of design, the drawing or altering of specification, the provision of patterns and final testing of the completed articles are essentially processes belonging to manufacture and supply, and the Ministry of Munitions should be wholly responsible for them here, as the French Minister of Munitions is in France, and should be so staffed and organised that it can deliver to the War Department in a fit and tested condition and ready for service the munitions asked for.

The Ministry of Munitions in meeting these requirements should be able to control and co-ordinate all the activities and operations that bear on manufacture and on the speeding-up of supply; and in making such alterations or adjustments as manufacturing exigencies may require from time to time, it should be able to decide these matters for itself and not require to apply in respect of them to another department of the State.

In pursuance of this general policy the Ordnance Board, the War Office Inventions Department, the Research and Chemical Departments at Woolwich, the proof butts and ranges, etc., should be regarded as under the supervision of the Ministry of Munitions.

The Ordnance Board should be reconstituted. The War Office, Admiralty, and Ministry of Munitions should be fully represented on that Board. The combined Inventions Board should have its representatives on the Ordnance Board. The minutes of proceedings of the Board should be available for the three departments, and should distinguish as clearly as possible between points of manufacturing detail, on which the Ministry could act, and those of a military or naval nature requiring the approval of the War Office or the Admiralty.

The War Office should also have access to ranges, butts, research department, etc., as may be necessary

for artillery training or other services not transferred to the Ministry of Munitions.

Such adjustment of storage should also be made at Woolwich between the Army Ordnance Department and the Ministry of Munitions as will enable the latter to receive, store, and handle all components of gun ammunition up to the point of handing over complete inspected ammunition to the Military Authorities.

These arrangements should take effect from this date, the necessary details being arranged in personal conference between the departments concerned.

EXHIBIT N.

Note on the powers and functions of the Air Board and on the supply of aircraft.

1. The Board will be composed of
The President,
The Parliamentary Secretary,
The Fifth Sea Lord of the Admiralty,
The Director-General of Military Aeronautics,
Two Representatives of the Ministry of Munitions,
Additional Members, as may from time to time be found desirable.

The Naval and Military Representatives shall each be authorised to bring to meetings of the Board an Assistant if and when they think fit. In case of the absence of the Fifth Sea Lord or the Director General of Military Aeronautics, an Officer will be deputed to represent the Admiralty or War Office.

2. The Board shall be free to discuss matters of policy in relation to the air and to make recommendations to the Admiralty and War Office thereon.

3. The Admiralty and War Office will concert their respective aerial policies in consultation with the Air Board.

4. The Admiralty and War Office will formulate the programmes of aerial production required for the fulfilment of the approved policy and will refer these programmes for the consideration and concurrence of the Air Board.

5. The Air Board will decide as to the extent to which it is possible to approve the Departmental programmes, having regard to the possible rate of production, the needs of the other Department, the respective urgency of the demands and the supplies agreed to be given to Allied Governments.

6. The Air Board will select and be responsible for the designs of aeroplanes and seaplanes, with their engines and accessories, which are to be constructed for the purposes of the approved programme and for experimental purposes.

7. For the purpose of carrying out its duties in connection with design, a Technical Committee will be constituted under the Air Board as follows:—

Chairman, to be appointed by the President of the Air Board.

Two representatives appointed by the Admiralty.
Two representatives appointed by the War Office.
Two representatives appointed by the Ministry of Munitions.

Three other members possessed of special qualifications may be appointed by the President; at least one of them shall have present day manufacturing experience.

The officers selected to represent the above Departments of the Government may be assisted or replaced by other representatives as may be found convenient.

The representatives of either of the three Departments may appeal to the Air Board in the event of their disagreeing with a decision of the majority of the Committee.

8. One of the Members of the Technical Committee will be the Executive Director of the Technical Department of the Air Board.

9. An Inventions Committee will be appointed by the President of the Air Board, in which will be amalgamated the functions of the Aeronautical Sections of the Naval Board of Invention and Research and of the Munitions Inventions Department.

10. Experiments for the Naval and Military Air Services will be conducted for those Services through the Technical Committee. For this purpose, Naval and Military Air Service Experimental Stations will, while remaining under the Admiralty and War Office for administration, pay and discipline, be placed at the disposal of the Technical Committee, which will issue its instructions through the Service Members of the Air Board.

The Experimental Stations in question are the following (to be agreed upon from time to time).

11. The Royal Aircraft Factory will be placed under the Ministry of Munitions and the designs prepared at the Factory will be dealt with in the same way as those submitted by a Contractor. It is understood that the Ministry of Munitions will permit the facilities of the Factory to be utilised largely for the purpose of conducting the experiments which are desired by the Technical Committee.

12. The Air Board will furnish approved plans and specifications to the Aircraft Supply Department of the Ministry of Munitions.

13. No modifications of design, other than trivial alterations within the discretion of a Superintending Inspector, will be made without the concurrence of the Air Board.

14. The numbers and designs of the aeroplanes, seaplanes, engines and accessories respectively to be ordered, having been determined by the Air Board, will be notified to the *Director of Munitions Requirements and Statistics* through the Controller of Aeronautical Supplies of the Ministry of Munitions, who will be responsible for their production, in conformity with the approved designs, and who alone is authorised to give instructions to manufacturers.

15. Inspection during manufacture will be carried out by the Ministry of Munitions.

16. All reasonable facilities will be afforded to expert officers of the Air Board and of the Services to have access to manufacturers' works.

17. The Ministry of Munitions will hand over to the Air Service for which they are destined, for trial and acceptance, the aeroplanes, seaplanes, engines and accessories, when manufactured, at the manufacturers' works.

18. For the purpose of giving effect to the above organisation, the officers and staff at present engaged under the Admiralty and the War Office on the duties of design and supply of aeroplanes, seaplanes, engines and accessories and on the Board of Invention and Research will, so far as may be required and possible, be lent for service with the Air Board or the Ministry of Munitions.

19. Any of the Departments represented on the Air Board, and the Air Board itself, will have the right of appeal to the War Cabinet in case of dispute.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

7 & 8

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

SEVENTH DAY

WEDNESDAY, 17TH JULY, 1935

EIGHTH DAY

THURSDAY, 18TH JULY, 1935

WITNESSES—

On behalf of the Union of Democratic Control (represented by
The Rt. Hon. Sir WILLIAM JOWITT, P.C., K.C.) :—

Mr. R. MCKINNON WOOD, O.B.E., M.A., F.R.Ae.S.

Mr. J. D. BERNAL, M.A.

Lord MARLEY, D.S.C., J.P., D.L.

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LONDON

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE
TAKEN BEFORE THE
ROYAL COMMISSION ON THE PRIVATE
MANUFACTURE OF AND TRADING IN ARMS

SEVENTH DAY

Wednesday, 17th July, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Professor Gutteridge: With your permission, Sir, I should like to make a statement to the following effect. I have recently become the sole executor and trustee of an estate which comprises a certain number of shares in Messrs. Vickers, Ltd. and Sir W. G. Armstrong Whitworth & Co., Ltd. In case my name

should appear on the register of shareholders of those companies, I wish to make it perfectly clear that I am not, and shall not be personally interested in those shares, and that they will be transferred at the earliest possible moment to a beneficiary under the trust.

The Rt. Hon. Sir WILLIAM JOWITT, P.C., K.C., appeared on behalf of the Union of Democratic Control.

1039. *Chairman:* Sir William, we have a copy of your clients' printed case,* and from what passed between us last night I understand what you propose to do is to put that printed case in as read. Since last night the case has been slightly revised, and I have no objection at all to the case as revised being submitted as evidence.

Sir William Jowitt: Thank you, Sir John. What I am proposing to do is to put that case in, and in the course of the few observations I am going to make about it to call attention to certain passages in it, and make any comments which I think proper upon it, so that those matters are clearly before you, and the eye and the ear can follow together certain passages.

1040. *Chairman:* Then you wish to address us and afterwards to examine your witnesses?

Sir William Jowitt: That is so, Sir John.

1041. *Chairman:* We have no objection to that.

Sir William Jowitt: I am much obliged. I might explain at the very outset, so that there may be no doubt about it, that the body for whom I have the honour to appear are quite frankly a Socialist body, believing in the Socialist theory. They are therefore perfectly ready and predisposed to take the view that a government concern is desirable on that ground alone. I mention that, and I do not want to conceal that at all, because, of course, you will discount, so far as you think necessary, the conclusions that we have come to in the light of that theory. Of course, you are in no way concerned with that theory, and you might think that we have too readily come to a conclusion by reason of our predisposition. On the other hand, we have tried, in making out this case, to divorce our minds altogether from the general theory and to consider this particular matter of the arms traffic on its own merits and quite separately and independently from the general theory which we support.

I mention that because I do not want to conceal the position of the Union in any way. They are a Socialist body, but they have considered this matter apart from the general, ordinary thesis.

The next thing I want to put to you is a word in justification of my appearance here, and it is this. It is quite obvious to any of you who have read, as

I have no doubt you have read, our evidence, that it has been prepared by a person or persons who know a great deal about it, and have a very extensive knowledge of the subject which you are considering. They have thought right to set out before you and endeavour to convey to you the facts which they have gathered about this particular trade.

Now, Sir John, generally speaking, for obvious reasons I am not in a position to call the persons who have been responsible for putting our case together. The facts which are stated in the case, I think, are largely beyond the realm of controversy, and an inspection of the armament works would reveal most of the facts which are set out. As far as the financial parts of our case are concerned, an inspection at Somerset House would confirm them. But I shall be able to call before you witnesses who have studied this matter carefully and will be able, I hope, to answer questions which may occur to you. May I add that if there are any questions of a technical nature which you would wish to ask, and you will let me know of them, I shall be very happy to get somebody to deal with them.

Now, Sir John, the next thing I want to say is this. We have not put this case before you at all from the point of view of pacifism. We shall have something to say about the desirability of suppressing this traffic, but we have addressed our minds to this problem quite frankly in this form. We concede that the state has inevitably to be armed as things are to-day, and for the purposes of to-day's discussion we concede that it is legitimate for you to consider whether the steps which are proposed will lead to satisfactory and efficient results. We shall endeavour to show you by evidence that the existing system, so far as armour and heavy ordnance is concerned, is an ill-devised system, combining the very worst features of private enterprise and collectivism, that it results in the state having to pay far higher prices than are necessary for the armaments which it buys, and that it does not provide adequate room for expansion.

Before I go any further in these observations, I want to say just this word or two about the question of desirability because, of course, you have to consider the desirability as well as the practicability of putting an end to the export trade in arms. I

* Appendix pp. 166 to 214.

17 July, 1935.]

The Rt. Hon. Sir WILLIAM JOWITT, P.C., K.C.

[Continued.]

have not got the figures before me as fully and completely as I should like, but in order that you may observe, throughout, in what direction I am working, and in order to have a sense of proportion and perspective, I think it is desirable to have at the outset the sort of figure which we are dealing with. I quote from an answer in the House of Commons on the 30th May of this year. In reply to a Question by Mr. Lunn, Colonel Colville published a statement showing the quantity and declared value of arms and ammunition, and military and naval stores, registered as exported from the United Kingdom to foreign countries during the year 1934. The total exports came to £1,285,000. That, I understand, does not include aircraft, and does not include ships. I think they come under different categories in the official statistics. But it would seem very broadly to include all those matters which would be the subject of a licence, and the total therefore is in round figures £1,285,000.

I mention that figure because some people seem to think that any restriction in the export trade in arms would spell a shattering disaster to the industry in this country. I have not got, and I do not know whether it will be possible for you to get, the figures of home production, the amount which we spend at home in arms and munitions; but it is quite obvious that the figure, whatever it may be, is a figure which is vastly greater than the figure which is specified in this Answer, which is £1,285,000.

The next thing to be said in regard to this aspect of our work is as follows. It must not be forgotten that we are presenting the case to you, and inevitably so, without having had the advantage of any sort of disclosure of books or documents or accounts, or without having heard what the arms trade, or the witnesses on behalf of the arms trade, are able to specify. We are therefore in an entirely different position from those who are conducting this inquiry now, and in our evidence we are finding ourselves up against this difficulty, of not ourselves being able to obtain the evidence. We have therefore quite roundly and boldly suggested that you should take some steps comparable with those which are being taken in America in order to be certain that you get to the bottom of this matter, and in order to get the evidence of the witnesses which we have not been able to get. You will not think I am making this suggestion with regard to this evidence in any manner which involves any disrespect to the function of this Commission; far from it. We are satisfied, and we think you will be satisfied, that if the public conscience is to be set at rest in this matter, it can only be if the public feel that the investigation which your Commission are making is as full and complete as possible. We cannot ourselves get the evidence, and we have therefore suggested many points in which we hope you will think it proper to send for witnesses, for documents, for agreements, and so on; and with regard to some of those matters, I will say something in a few moments' time.

Now, Sir John, I should like to say a word or two on the question of desirability. Well, now, in the old Victorian days one used to hear it said sometimes, "If the Chinese insist upon having opium, at least let us see that the opium is carried in British bottoms." I think we have progressed a little from that point of view. We are asking you to say that this arms trade, this export of arms, small though it may be in amount, is doing, at the present time, incalculable harm in rousing international distrust and international unrest, that the trade is an undesirable and discreditable trade, conducted only too frequently by discreditable methods. It would be one thing, and quite possibly a proper thing, if arms were manufactured in this country, for a nation that does not manufacture arms to come to this country and ask, and ask publicly, for arms to be supplied to it. Such a thing is, of course, possible, and we trust that as a result of this Commission we shall do away with the touting which goes on at the present time,

involving, as it must do, heavy overhead expenses, and, involving, only too frequently, as we see it, and as we believe, discreditable methods which cause many difficulties in our private and foreign affairs.

We contend that the arms trade must have, on a *a priori* grounds, these tendencies. There must first of all be a tendency towards militarism. The profit-making motive, a perfectly legitimate motive in ordinary commercial dealings, must tend to make a man press his wares, and on our evidence we are satisfied as to that. I would call your attention to this. It is towards the end of Part II of our statement of evidence, and I will, with your permission, read these passages:

"If a manufacturer wishes to extend the sale of his wares, both in this country and abroad, he advertises, tries to supply a better or cheaper article than his rivals, and generally tries to persuade possible consumers that they will get more value in use from their purchases than the money they will expend on them. The amount of the sales which he can effect in this way depends partly upon the wealth of such consumers, partly upon his success in creating the opinion that it is important for or useful to the consumer to possess the article. But the demand for armaments differs in several respects from the demand for ordinary commodities."

And we set out four respects, as we see them:

"1. A manufacturer of commercial goods who increases his sales in a foreign country does not, by so doing, increase his home demand; in the case of armaments, he does. If an English firm builds destroyers and submarines for a foreign government this tends to lead to a demand for an increase in the British Navy.

"2. A foreign manufacturer who increases sales in his own country, does not by so doing increase the demand for the commodity in our country, but in the case of armaments he does. If Krupp can persuade Germany to order more artillery, this leads to a demand for more artillery in England.

"3. In the case of armaments the consumer is the state and has great wealth or resources; thus if the state can be persuaded that armaments are necessary, they will be bought whatever the cost. But however necessary commercial goods may be, a maker cannot increase his sales among the poor.

"4. In the case of armaments the consumer is the state and the usual methods of advertising are not efficacious; they can, however, be replaced by the interested parties working up a patriotic agitation. Lord Snowden's speech on the Naval Estimates in 1914 made Members of Parliament aware of the way in which the scare of 1909 was managed.

"Thus, whereas the interests of ordinary men lie in peace and security, the interests of those who live by the sale of arms and materials of war lie in fear, insecurity, and ultimately, in war."

That summarises our objection to private trade in arms, both at home and abroad; but abroad we have the tendency—and I am dealing with the tendency—to corruption through secrecy and lack of publicity, and I shall give you chapter and verse for this. Finally we say that the present system is an inefficient system through inadequate organisation, and in the case of heavy steel and heavy ordnance an out-of-date and inadequate works layout, coupled with the lack of any adequate control. 1042. *Chairman*: The scare of 1909 which you speak of is, I suppose, the Mulliner incident?

Sir William Jovitt: Yes, Sir.

Now I want to say a word or two about corruption. We are, as I have said, frankly, Socialists. Those for whom I have the honour to appear may be

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thought to be prejudiced about this matter, and therefore I do not want to put this case only from our point of view. I want to put this case from the point of view of an arms manufacturer describing the situation as he sees it in the Balkans. This is one of the letters which came out in the American Inquiry. The letter is dated 10th October, 1922, and it is at page 2,595 of the American proceedings. It is a letter from the sales manager, a Mr. Taylor, to his company, the Du Pont de Nemours Company, the big explosive manufacturers in the United States of America, describing what happens when he goes to try and sell his wares in the Balkans.

1043. *Chairman*: But is that a matter which I can admit? It is a letter from whom to whom?

Sir William Jowitt: It is a letter from Mr. Taylor to the Du Pont de Nemours Company. I want to show you at any rate this: It is commonly believed and commonly conceded that the method of selling to small foreign countries such as those in the Balkans is this. You go to them, and you have to persuade some officer of state, be he the minister of finance, or the minister of war, or whatever he may be, that he will get a very substantial commission if he will place an order for your goods, and unless you do that you cannot sell your wares at all. It is also known that in order to get his commission he does thereupon place the order. The result of his placing the order, and the country buying the wares, is therefore that the neighbouring country is forced to buy also. I propose to read this letter, with your permission, to show that that is a view which is not held by mere uninformed people, or advanced people like my clients, but it is held by an arms manufacturer who is himself out on the spot. I then propose to show you, if I may, that so far as the British arms firms are concerned there are two letters written by a gentleman who is concerned in it, saying that he realises that what he euphemistically calls "grease" has got to pass in these arms transactions.

1044. *Chairman*: I cannot admit this letter, nor can I admit without evidence any statement that bribes are given to representatives of foreign countries. You may put that forward as a hypothetical case, but you cannot put it higher than that; and of course the other letters you refer to, if they are written by representatives of a British firm whom we can have here and examine, that is another matter.

Sir William Jowitt: Then, Sir, this letter is not written by a representative of an English firm. It is a gentleman in the Balkans indicating what English firms do.

1045. *Chairman*: What he says English firms do; but I cannot admit that letter as evidence on that?

Sir William Jowitt: Is it not material, then, if it only goes to this question? Is it not at all material to you to know that this is a statement which is commonly believed? Because I can conceive that if people, whether rightly or wrongly, believe that there is this graft, and this discreditable work done, that at any rate in itself, true or false, may be a reason for doing away with the private trading in arms.

1046. *Chairman*: We have had abundant proof that people believe it, whether rightly or wrongly; but that is another matter. I cannot admit it. It is outside the ruling that I gave as to the way in which we shall conduct this Inquiry. We are quite prepared to admit any letter written by an English person whom we can call as a witness, and whom we can examine as to the correctness of the contents of a letter, but a letter of this kind we cannot admit.

Sir William Jowitt: Then I will ask you this. You will see that in this letter a particular man is mentioned. I would ask you to call that man, or to endeavour to secure a witness who shall come and give evidence before you.

1047. *Chairman*: Yes. Have you given the name?

Sir William Jowitt: Sir Basil Zaharoff.

1048. *Chairman*: Yes; we have had his name mentioned before.

Sir William Jowitt: I shall ask you to see that Sir Basil Zaharoff is brought to give evidence before you. I do not think your ruling applies to the letters from Captain John Ball, of the Sole Armament Company, to the American Armament Corporation, whom he is making his sole agent in America, because those letters are written by somebody who describes himself at any rate as being an agent to our Government for the sale of arms. He writes this at page 672: "As we are really the sole selling channel for small arms, etc., which belong to the British War Office," and so on. On page 675 he writes this: "We fully understand that arms deals are not usually done without some officials getting 'greased' but if any palm oil is required, it has to be added to the price, and as our prices are at least 50 per cent. less than factory prices for the same arms, they will stand a lot of 'grease' and still be cheaper than the manufacturers' prices." The answer you will find comes at page 684, where the American firm say: "Your remarks anent greasing the wheels that make the deals go around are very true and we fully appreciate that very often oil must be added to your quotations. In this connection will you make it a point to always quote us your prices net to us c.i.f. New York."

The writer of the other letter I referred to—I was not aware of this at the time, or I should have told you—is the joint agent of the Du Pont de Nemours Company and I.C.I. Under those circumstances does your ruling hold, or do you rule that that letter may be read?

1049. *Chairman*: Well, the exact passage in our ruling which I gave when we commenced these Proceedings was: "In the case of firms and individuals resident and carrying on business abroad, and of transactions taking place wholly abroad, it is clearly not practicable for the Commission to carry out any satisfactory investigation of allegations that may be made. The Commission, however, will not decline to allow witnesses to cite, in support of an argument, cases in this category which have been the subject of public allegation or report."

Sir William Jowitt: That has been the subject of public allegation and report, and formed the subject of inquiry before the American Tribunal.

1050. *Chairman*: You say now that Taylor is an agent of whom?

Sir William Jowitt: Of Imperial Chemical Industries, of London. He is a joint agent for that company and the American company of Du Pont de Nemours.

1051. *Chairman*: Will you just leave this for the time being, Sir William? I will deal with this after the adjournment.

Sir William Jowitt: If you please, Sir.

1052. *Chairman*: Let me just look at the letter again. I do not want to exclude anything that under my ruling ought to be admitted.

Sir William Jowitt: It is at page 2595. We include this gentleman, under the heading of "Imperial Chemical Industries," amongst the list of witnesses whom we hope you will call before you.

1053. *Chairman*: But is he in this country?

Sir William Jowitt: I believe he is in Paris.

1054. *Mr. Spender*: Is he British?

Sir William Jowitt: That I do not know, Mr. Spender.

1055. *Chairman*: I will deal with it after the adjournment, because I should like to read the letter through before I give a final decision.

Sir William Jowitt: If you please, Sir. We have a phrase which is certainly corroborated in the letter which I read to you from Mr. Ball, that in selling arms to small countries, officials—and that of course means officials high up—have to be "greased."

1056. *Chairman*: You say "officials high up." I do not think you ought to jump to this sort of con-

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clusion. I do not know who the officials are. They are officials, yes.

Sir William Jowitt: I am not talking about this country at all, Sir John.

1057. *Chairman:* No, I agree.

Sir William Jowitt: That is why, of course, one wants to read these letters, because, not having had any disclosure, in the nature of things it is impossible for us to give chapter and verse for these things. We can only say it is commonly believed by those concerned in the sale of arms. We do not suggest, Sir John, for one moment, that anything comparable with that goes on in this country at all. Of course, it is ridiculous to suggest that the Chancellor of the Exchequer could be bribed, or that anybody in that sort of position could be bribed. We do not suggest it for a moment, but what we do say, and what we ask you to consider, is this. We set out in Part VI of our statement of evidence* the very large number of people who are in control of the armament firms to-day, who have come, and come directly, from government offices; from responsible and important positions in government offices they have gone straight over to the arms firms. Now, let me make it quite plain that I am not making any suggestion against the good faith of these people. I have not the slightest evidence that any one of these gentlemen has ever been actuated in any improper way—not the slightest—and I am not going to make any suggestion against any one of those gentlemen. But I do suggest that a system whereby those who are responsible for contracts, or for engineering design, or whatever it may be, should frequently and habitually go over to the armament firms, is a very undesirable system as a system. I realise, and it is perhaps fair to say this, that such a system is perhaps inherent in the private trade in armaments. You cannot run an armament firm if its directors and management are going to be—what shall I say?—a lot of lawyers. You must manifestly have people who understand about submarines, and ordnance, and big guns, and so on. Such a system must be inevitable. If it is inevitable, it is another additional and strong reason, as we say, and as we see it, against the private traffic in arms. After all, it must tend to put a man in a very difficult position. Take a man like an engineering director, or a director of contracts, who has every reason to hope for a position. Suppose at the end of his time he will be taken into, say, armament firm A.B., and whilst he is still in government employment, and has control to a certain extent, a question comes up as to what firm is to have a certain contract allotted to it. Now, I have no doubt that these people do the best they can in the government interest, and do not allow themselves to be actuated by any improper motives. But I do say this: Any system which allows a man to be placed in a position where his duty and his interests may conflict is a bad system, and for that reason we call your attention to this state of affairs, and we say it is very undesirable that it should continue to exist, and we say that in certain cases it has given rise to trouble.

In that connection the case of Mayers has been quoted frequently. You will remember the position there. There was a man who had no corrupt motive. He was found guilty, but merely bound over. He had left his position, and he had taken with him certain documents which he had—plans—which he had in his possession as a government servant, and had taken them over with him when he was transferred to his new post in an armament firm. The matter has been dealt with in the American Inquiry, in Part I of the Proceedings, and this evidence is relating to an Englishman, and therefore is not subject to any bar under your ruling. It is Exhibit No. 172 at page 438 of Part I.

Commander Craven is writing to Mr. Spear:—

“MY DEAR SPEAR: I have purposely not written to you about Mayers because I thought it only fair and right that I should not do so

until after the result of his trial. He appears at the Old Bailey next week and all I can tell you is that the case will be tried in camera and that the charge is a serious one.

“I have very definite assurances from Lord Beatty, from the Director of Naval Intelligence at the Admiralty, and from the Chief of Staff of the Submarine Service (who was largely responsible for my taking Mayers on) that Vickers can in no way be implicated. Even when the trial is over I do not think I shall be able to let you know the whole story until we meet, which I hope will be before long.”
Then in the next Exhibit, No. 173:—

“MY DEAR SPEAR: For your private information, Mayers has called me for the defence. I told the Admiralty I was afraid he would do so if they did not call me for the prosecution. However, it will give the prosecution a chance of getting out of me exactly why I engaged Mayers, and I have so far received definite confirmation from Lord Beatty that, in taking Mayers, Vickers acted in the interests of the Admiralty and they apologize for the trouble they have landed us into.
“Lieut. Commander Cumming, who is a submarine officer of considerable standing, has recently joined my staff.”

That is a case of a man definitely placed, by direct transference from government service to private service, in a difficult position in which he certainly made what the judge trying the case described as a serious error of judgment. But we ask you to say that these young men should not be put in a position where they can make serious errors of judgment of that sort. In that connection I call your attention to Part VI of our evidence, under the heading “Armstrong-Siddeley Development Co.,” and particularly to the facts in relation to Mr. Green. He was allowed to take with him the drawings and all the information which was available on air-cooled engines, and it was on the basis of that information that Armstrong's engine work has been built up. We ask you and invite you, in the course of the inquiry, to investigate and see whether that is so, and to say whether it is right that some people may take their drawings and some may not, and relate it to the question of whether that procedure does not give scope for errors of judgment of this character.

It is this atmosphere of suspicion, which I think is quite commonly and not unreasonably felt, that casts a cloud over our minds when we are reading some of this evidence, and makes us suspicious, when we read that letter which has been referred to before at page 406 of Part I of the American evidence. Commander Craven writes thus:—

“I wonder whether you have heard that our old friend Percy Addison is now the director of dockyards. I helped him all I could to get the job, and I think he will be an ideal fellow for it. It means his retirement, but it also means his having a permanent job for about ten years if he behaves himself, and as he has no private means worth talking about, you will appreciate what this means to him. I have suggested to him that you and I, and he and Johns (who is anxious to meet you), should have a party and thoroughly wet the appointment next time you are over here.”

Now, I conceive it to be quite possible that that letter is capable of an innocent explanation. I conceive it to be, on the other hand, unfortunate that all this matter has to be looked at in this atmosphere of suspicion, which I think is not unreasonable suspicion, and I, on behalf of the Union, certainly invite this Commission to see that that matter is, in the public interest, very thoroughly probed.

For the rest, I would say this. We submit that one of the problems inherent in a system of private traffic in arms, at home as well as abroad, is that the people you employ to help you and to conduct that service, most, in the nature of things, be people who are largely drawn from those services—the fighting

* Appendix pp. 199 and 200.

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services—which they have just left; and we suggest that that is an undesirable feature in our public life.

Now, Sir John, the next objection we make to private traffic is that it must tend towards militarism; and I cannot do better than quote, in support of a point of view which I suppose is not capable of any exact scientific proof, the words of Lord Wemyss—who, after all, cannot be considered as being a sloppy pacifist, or anything of that sort—which we have thought right to set out at the beginning of Part V of our evidence.* I would call your attention to these words: “. . . the following reference is made in a memorandum drawn up by Lord Wemyss and Mr. W. Harbutt Dawson:

‘Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, the system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of any kind naturally wants the largest possible output. Not only therefore has it a direct interest in the inflation of the Navy and Army Estimates and in war scares, but it is equally to its interest to push its foreign business. For the more armaments are increased abroad, the more they must be increased at home. This interrelation between foreign and home trade in armaments is one of the most subtle and dangerous features of the present system of private production. The evil is intensified by the existence of international armament rings, the members of which notoriously play into each others’ hands. So long as this subterranean conspiracy against peace is allowed to continue the possibility of any serious concerted reduction of armaments will be remote.’”

Now, Sir John, in your terms of reference you are asked to consider and report upon the practicability and desirability, both from the national and international point of view, of the adoption by the United Kingdom alone, and by the United Kingdom in conjunction with other countries, of a prohibition of private manufacture. Many people will say: “Well, desirable as this thing may be, it is impossible that any other country should follow suit”; and therefore I will remind the Commission of that with which I have no doubt they are fully acquainted, that the French, Danish, Polish and Spanish countries have already made this proposal. Other countries have insisted that the trade should be internationalised, but at least it would seem probable that if we will only take this step, there are other countries, France included, who will be only too ready to follow us. And you will remember, Sir John, that so far as Sweden is concerned, by a law which becomes operative in 1938, the Swedish Government have already arranged that the manufacture—altogether apart from the export—the manufacture of arms shall be put under most rigorous public control; not state manufacture, but public control.

We call attention to the fact that the advertisement by British firms of arms abroad may have an unfortunate effect on the belief which people have as to the pacific intentions of our Government; and it is the fact, for instance—you can send for the papers—that Vickers have been advertising in the German papers from April, 1932, to March, 1933, in the papers *Militär Wochenblatt* and *Wehr und Waffen*, which are monthly papers, advertising their tanks for sale and describing their merits and advantages.

I pass from that to ask you to consider what perhaps has not been put to you before. What are the ramifications of the armaments trade in this country? What does it consist of; what are its connections at home; what are its connections abroad? We have gone through this matter as carefully as we can. We cannot, of course, hope to have

the information which will be forthcoming in due course to you in the course of your inquiry, and from the skilled investigators whom you may employ, nor can we hope to have as much information as the Government. We think it right, however, to call your attention to this piece of evidence that should combat any evidence which may be brought to the contrary effect. It is an answer given by our Government, and, as we suggest, it is a very remarkable answer. A Committee of the Disarmament Conference determined, in view of the suggestion of the French Government to make an end of the traffic in arms, to find out, by means of a questionnaire in each country, what the position of the arms traffic in each country was. This is the questionnaire which was addressed to the various states, and I am going to read our Government’s answer: “What undertakings in the territory under the jurisdiction of your State are chiefly, or largely, engaged in the manufacture of the articles coming under categories I, II, III and IV of the 1929 draft Convention . . .”—that would be roughly arms and armaments, Sir. Our Government answered that question in this way; they set out the list of their state factories, the Royal Arsenal, Woolwich, the Royal Gunpowder Factory, Waltham Abbey, and so on, eight of them in all, and then they say:

“With the possible exception of certain firms manufacturing sporting weapons, and a few firms manufacturing aircraft (civil and military), there are no private undertakings in the United Kingdom which can strictly be described as engaged chiefly or largely in armament manufacture. Even the largest firms, such as Vickers-Armstrong, making armaments in this country, devote only a portion of their time and output to this form of work, their other activities being entirely unconnected with armaments.”†

They say “devote only a portion of their time and output,” they are not “chiefly or largely engaged in armament manufacture.”

That is the evidence, and I felt it right to bring it to your attention as a most astounding answer to anyone who knows the facts. It certainly would be an astounding answer to Sir Herbert Lawrence, who was chairman of Vickers and Vickers-Armstrongs, because he, on the 4th April, 1932, eleven months before our Government gave its answer, at the general meeting of Vickers, Limited, dealing with Vickers-Armstrongs—in which firm Vickers hold the bulk of the shares—says: “Vickers-Armstrongs depends very largely on armaments for its existence.” And yet eleven months later, our own Government says that there is no firm largely engaged in the production of armaments. I have a catalogue of Vickers-Armstrongs before me. They say here: “The production of armaments is an important item of the engineering products of the world.” They show you guns which they have frequently made for the Italian, Spanish, and Peruvian Governments, the Lithuanian Government; and they deal with their howitzers, and they deal with under-water warfare. They say in that section dealing with under-water warfare that they are in the unique position of possessing the world patent rights of all the useful modern developments in connection with submarines, mines, depth charges, and paravanes.

I call attention to the phrase “the world patent rights,” because the world, of course, includes Germany; and in due course you will no doubt wish to inquire—at any rate we suggest that you should—what are the arrangements between Vickers and the various German firms. We suggest to you that it is an astounding view to take, and we do not believe, nor do we suggest that you will believe, that the directors of Vickers-Armstrongs would support the suggestion, that Vickers-Armstrongs is not

† League of Nations Publications: IX Disarmament. 1933. IX. 7. (Conf. D. 100)

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largely, and is not mainly—I will not say mainly, but at any rate largely—engaged in the production of arms.

Now we come to what I think is a particularly telling part of the evidence which we have been able to collect for you. We find that the armaments trade falls under several headings and groups to which, I think, wholly different considerations apply. Let me just run through them. There is first of all, of course, the heavy armaments. By that I mean armour plate and heavy ordnance. You will find that the facts there are that in a comparatively defined area there are three or four firms very closely inter-connected, who are alone responsible for that part of the industry. I shall have presently to call your attention to certain points which make us say that the organisation and lay-out of that industry is thoroughly inefficient. If one includes ships—of course very different considerations arise as to ships—you will find, if you look through that part of our evidence, that there are many more firms, that they are much less closely connected, and I know, by the reason and the very nature of things, there is, and indeed must be, a different legal position. No firm in this country could start building a ship for a foreign government without getting the approval of our government before it does the first thing towards it. It is not a question of getting an export licence after you have made the things. It is manifest that you must get approval first of all. Further, of course, with regard to the building of ships you have more publicity. Anybody who has interested themselves at all in these matters must know what ships are being built for what government in this country.

Therefore you have a division of the arms industry, heavy arms and ordnance, which supply the armour plates for the ships; and what differentiates a warship from an ordinary ship is, of course, very largely the fact that the warship has heavy armament, heavy armour plate and heavy ordnance. Therefore ships are in a different position.

Then you come to the chemical industry, with its application to explosives and poison gas. There you find the matter very largely, of course, in the hands of the I.C.I.; and just as those who have put this case together have said that in the case of heavy armaments they regard the industry as completely inefficient, in the case of the I.C.I. they say, speaking by and large, that the production is very efficient—the production is efficient, and the organisation good. They are responsible, of course, for explosives; but it is not, like it is in the case of heavy armament, a main or a large or a chief part of their business; it is comparatively small, of course, compared to their business as a whole.

Then I pass from the chemical industry, which I will deal with in due course, to consider the aircraft industry. Here you have again a completely different problem. You are not suffering from the old-fashioned lay-out which you have tinkered with and tried to bring up to date. You have got a more or less empiric industry springing up, you have got a considerable number—as we know, if we read the papers, almost every day the number is increasing—of private firms who engage in aeroplane manufacture. I shall call before you on this topic a witness who can speak with great authority, and he will point out that that industry is being inefficiently run, for this reason. It is quite obvious that we are wanting to try out all sorts of types, but it is equally quite obvious that the kernel of that industry ought to be the research department. You ought to get some of your finest scientists in this country thinking this problem out, and what they think out in their research work ought to be made available to all these people. At the present time you have many of these firms indulging in their own little bit of research, which too frequently may overlap with other research, and which of course is not made available to the others. In so far as they are on government research, the government officials are placed in a particular difficulty, in that if they are asked by A.

to make certain inquiries, they obviously cannot reveal the result of those inquiries to B. Thus you have an industry which for those reasons is inefficiently conducted and inefficiently run. It seems to us that it is really unscientific to talk about the arms industry as a whole, as though you could necessarily apply the same arguments and the same canons to one group of armaments as you can to another. I am afraid that I have not a great knowledge of this subject, but the greater knowledge of the subject, the great knowledge which is set out, as I think everybody will agree, in this evidence, makes us understand that we have got to consider each of these three categories separately, and that arguments which apply to one do not necessarily apply to another.

I propose first of all, therefore, to consider the heavy armaments industry, and in considering that I will say a word or two about small arms. In Part IV of our evidence, we set out the position under Chapter 2.* We say there: "Armour plate and steel for heavy ordnance is manufactured by three firms only. These are the English Steel Corporation, William Beardmore & Co., and Thomas Firth & John Brown." Now, let me say a word or two about those companies first of all. Vickers are a holding company, and Vickers hold the shares in Vickers-Armstrongs. Vickers-Armstrongs is in a position of controlling the English Steel Corporation, so therefore the English Steel Corporation and Vickers-Armstrongs may be treated as being one. With regard to William Beardmore & Company, the position is less certain. Investigation will easily enable you to find out what the position is, but I think I should be right in saying that by very large holdings of preference shares—Beardmore is now run by trustees for the debenture holders in the Law Debenture Corporation—substantially speaking, we see here that Vickers-Armstrongs controls William Beardmore & Company. Thomas Firth & John Brown are not controlled in the sense that the English Steel Corporation or William Beardmore & Company is, though their inter-connection, as I shall show you in a moment or two, is very close. The inter-connection arises as follows, but before I mention that I had better just refer to shells. We see the position with regard to that in the third paragraph. "Shells and armoured turrets are manufactured mainly by Hadfield. Vickers and Firth Brown do make a certain number of shells, but by far the most important shell firm is Hadfield." So you have got to consider Vickers, John Brown, Hadfield, Beardmore, and the English Steel Corporation, and of those five firms, two of them, namely, the English Steel Corporation and William Beardmore, are controlled, or substantially controlled. The other two, Hadfield and Thomas Firth & John Brown, so far as Somerset House records go, are not; but, on the other hand, there is a very nice community of interest, and we set out the nature of that community in the succeeding paragraphs.

First of all, steel for armament manufacture has to be made from the very finest ore procurable, and in the old days there was a company called the Carnforth Haematite Iron Company, which concerned itself with the production of ore. That ore is now provided, we believe, largely from Sweden. You will no doubt investigate it, but we believe that there are Swedish companies occupying the old position of the Carnforth Haematite Iron Company, who still have their interests, but they naturally would not be revealed at Somerset House, and therefore we cannot say definitely, one way or the other.

We want ore, and then we want firebricks, or rather, somebody wants them; and we set out that there is a company called the Oughtibridge Silica and Fire Brick Co., in which the English Steel Corporation hold a large block of shares. We say: "The control is largely in the hands of the English Steel Corporation who hold out of the 177,800 shares some 19,500 in the name of Vickers and another 19,500 in the

* Appendix p. 175.

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name of Cammell Laird. The interests of the English Steel Corporation, through Vickers, in the Parkgate Iron and Steel Co., give them another 19,500 shares. Among the other shareholders are Hadfield with 19,500 and John Brown with 16,700, and Thomas Firth & John Brown (controlled by John Brown) with 22,300." So that in connection with their firebricks they are obviously very closely related.

Then I come to nickel. Nickel is, as you know, and as we set out here, a very expensive raw material, costing about £200 a ton, which must be used for high class steels such as armament steels, and it is very interesting to see what steps the armament firms have taken in order to ensure that they have sufficient nickel; and I am going to say a word or two about that when I come to consider their international importance, because you will find that they are linked up there internationally as well as nationally, in order to get their nickel.

Then we state the position in regard to electric appliances, and set out the details relating to John Brown, Cammell Laird, and the Fairfield Shipbuilding Company, forming together the English Electric. Then later on—I do not think I need trouble to read it—we set out with a wealth of detail the international connections.

Broadly speaking you may say that John Brown and Hadfield are very closely associated both by the various industries I have indicated, and also the banking arrangements with Vickers-Armstrongs and the English Steel Corporation set out on the ninth and tenth pages of Part IV. So far as Vickers abroad is concerned, I do not think these facts would be controverted. The firm holds large and important interests in a Polish company, in an Italian company of the name of Terni, in a Rumanian company known as Resitza, and in a Japanese company which again links up with Mitsui, and a Spanish company. The precise extent of the holding does not very much matter; you can get that very much more authoritatively from other sources which you have at your disposal than I can. I believe I am right in saying that the Spanish company at any rate is controlled, that the Rumanian company represents an interest of 30 per cent., and that the other companies are very substantially controlled.

Now, Sir John, of course in the linking-up of Schneider, the great French group, who of course in their turn control Skoda, you find a very close community of banking interests in the pages which we have referred to. You will also find this. First of all, if you look at Part V* of our evidence, you will see an extract from an agreement made the 3rd January, 1928, between Vickers Limited and Vickers-Armstrongs Limited, and we set out a part of the fourth schedule. There you will see: "The benefit of all agreements, and arrangements entered into by the Vendors for rendering technical services to others in connection with armaments, but subject to the obligations binding upon the Vendors in respect thereof including agreements and arrangements with the following Companies," and you will find that No. (4) is "Vickers-Schneider."

Therefore one would infer that there was, or at any rate had been, a company called Vickers-Schneider; but Sir Herbert Lawrence has stated that there never was such a company as Vickers-Schneider, and therefore the reference there to Vickers-Schneider presumably could only be that there was some company contemplated for some purpose or other which was going to consolidate the interests, or concern itself with the joint interests, of Vickers and Schneider. I cannot go further than to call your attention to that passage, and to tell you frankly the explanation which has been given, in order that, in that connection, you may make, as you no doubt will make, such inquiries as you think proper.

But I promised to say something about nickel, Sir John. The nickel situation is remarkable. There was founded in, I think, 1901, a company called the Steel Manufacturers' Nickel Syndicate. Its object, as expressed in its Memorandum and Articles, was to secure that prompt and satisfactory supplies of nickel should be available to all its members. The exact words are: "The object of the Company is the purchase and distribution amongst members of, *inter alia*, nickel cobalt and other ores"; and the Memorandum of Association provides for the distribution of assets in the form of specie. The original directors were a gentleman called Sigmund Loewe, a director of Krupp—he is returned in Somerset House only as a director of Vickers—and Captain Tresidder, and Mr. Clark, and Mr. Noble, of Armstrongs, and Mr. Beardmore, of William Beardmore, Limited. In the year 1914, at or shortly after the outbreak of war, its members were as follows; they are stated in Part V of our case. Apart from various clerks who hold one share, and whom I will leave out and group with the main holders, you will see that the fifth name down is that of Cammell, Laird & Company. They are English; Vickers, Ltd., are English; Tresidder is described as a steel manufacturer, but was managing director of John Brown and Armstrong-Whitworth; and then I will leave out some, if you will allow me to do so, until we come to Hadfield and Beardmore. There are six well-known English firms there, each of them with 125 shares. Then the Germans and French, who are also members, had an equal number of shares. The Germans you will see just under Armstrong-Whitworths. They are Fried Krupp Aktiengesellschaft, with 125 shares, then—leaving out the next one—Der Dillinger Hüttenwerke, with 118 shares, with a nominee which brings them up to 125 shares, and then there is one other German or Austrian firm, Witkowitz-Bergbau und Eisenhütten Gewerkschaft, Austrian steel manufacturers, with 125 shares. The French had a corresponding number: The Schneider Company, 125 shares; the Compagnie des Forges de la Marine, 125 shares; and the Compagnie des Forges de Chatillon, 125 shares. So that the English on the one hand, and the French and Germans on the other hand, exactly balance; and the balance of the shares was held by an Italian Company, whose name you will find, the Società Di Terni, of Rome, who, as I have said, are a company in which Vickers had, and I believe have, a substantial though not a controlling interest.

That was the position, you will see, at the 23rd October of 1914. The present position of the company is worth looking at at the moment, because it leads to obvious scope for inquiry. On the following page of the statement of evidence I would call your attention to this. First of all, you will see the last three names, 248 shares, 1 share, and 1 share; that is 250 shares. They obviously represent the old Vickers and Armstrong Whitworth holdings. They each had 125 shares before, and now they have 250 shares between them. The first name is Beardmore again, and it has still got the 125 shares. The third name is Bishop. He represents what Tresidder did in the old thing; he has got his 125 shares as a nominee, of course. Then the English Steel Corporation, they are the same now as Cammell Laird, in the changes that have been made; the English Steel Corporation have taken over Cammell Laird's interest; and Hadfields are still there. So that you will find, if you work it out, that the six English firms, with the necessary changes, of course, by reason of alterations, are still there. The three French firms are still there, the Forges de Chatillon, the Forges de la Marine and Schneider are still there. Terni, the Italian firm, have still got theirs, but the 369 shares which were previously held by the Germans are now held by Mr. Arthur Stanley Chappell, of 20, Marham Gardens, Wandsworth Common, S.W.18. He is Secretary of the Steel Manufacturers' Nickel Syndicate, Ltd., and that with the odd ones makes up the 375 shares originally held, and it is obvious he is a nominee shareholder for somebody. At the moment

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we have no means of finding out what the holding is there; but the continuance of this company shows, as we argue, certainly that at the outbreak of war, and for some few weeks after the outbreak of war, all the main arms manufacturers of the world were at any rate united together to make suitable arrangements to buy nickel and provide nickel for their various members. To-day, in 1935, at the present time, the German shareholding has dropped out, and the secretary of the company holds what were the German firms' shares, no doubt in the interest of somebody. Who that somebody is I have no idea, and you may think it proper to make inquiries as to it.

Thus these arms manufacturers of the heavy arms trade are very closely linked together, and closely linked together not merely nationally but internationally. Indeed, they have all the outward signs and symbols of what we call an arms ring.

Now, confining myself to the heavy arms for the moment, may I show you our criticism of it in Part VIII*. One can deal with this without too much elaboration, I think. It is sufficient to say that having shown you who these firms were, you find that set out under *Technical Losses* are the names of the firms and the localities of their works. It is sufficient, I think, to say that in a comparatively defined area those people do their work and have their being. But at the same time they of course are the inheritors of works which have grown up from much earlier days, when requirements were very much less, and there never has been, as there ought to have been, that sweeping rebuilding, instead of mere tinkering, which both the American Steel Corporation and the Thyssen works have carried out. They, realising the importance of getting an adequate and up-to-date organisation and lay-out, have scrapped entirely, instead of merely tinkering with what they had, and they have built the most up-to-date works possible.

We suggest that the taxpayer would be saved a great deal of money if in this country the same thing was done in regard to armour steel, this heavy armament steel, which can be very clearly differentiated from ordinary steel both by reason of the completely different process which it goes through in its life history—we have set out all the details here—and also by reason of the fact that its manufacture is concentrated in very few hands, and it is perfectly easy to separate and segregate it.

A question of policy would arise, however, which I will just sketch shortly, and that is this. From the point of view of efficiency in manufacture it would be very much more convenient to have all your works organised together, laid out together, to enable you to produce exactly what is required, and preferably very near a shipbreaking yard where warships are broken up so that you can use the scrap, the same class of material, for making your new steel. Whether it would be a wise policy to put all your eggs in one basket in view of the new forms of warfare, which you know about, and into which I need not go, or whether it would be considered desirable not to have one place only, to have three or four widely separated points, I am not in a position to express an opinion. But I would point out that under the present system you have got the worst of both worlds, because you have got a comparatively defined area, and at the same time you have not got that controlled and unified organisation and lay-out which we suggest you ought to have, and from that point of view we say the present system is very inefficient.

We suggest, and the details are given in Part VIII, under the heading *Technical Losses*, that "When a works is laid out for the production of several types of product, it is obvious that the lay-out cannot be as satisfactory as if it were designed for one product only. For example, the armour plate departments of E.S.C."—the English Steel Corporation, formerly Cammell Laird—"are situated fairly close together,

but even so a plate must cross the main Sheffield-Doncaster road by a level crossing no fewer than four times in the course of its production. A distance of three-quarters of a mile separates two armour plate departments of what was formerly Cammell Laird's works at Grimesthorpe and Cyclops, and though the latter works is not producing at the moment, arms products have still a rail journey to make from Grimesthorpe to the River Don works. There is a big transfer of steel between E.S.C. and its subsidiary company Industrial Steels—13 miles apart—and Firth Browns manufacture steel in their Atlas and Norfolk works to be finished in the Tinsley works."

That we believe, and we give reasons here, to be a thoroughly inefficient lay-out. If we had a modern Mr. Ford in this country, who was organising works, we do not think he would stand for or tolerate that for one moment.

We set out in the second argument that the administration would be vastly simplified if you had a factory to make one class, and one class only, of this steel. We point out that so far as the control of materials is concerned, one of the most important matters in the steel works is to be quite certain that the scrap that you are going to feed to your furnace is the right sort of scrap, and that involves an infinity of stock keeping.

Then a little lower down we speak of *Compromise in plant*, and we point out that in one case we tried to turn the lathes which were on armament work to commercial production, and had to give it up; it was quite inefficient. You see the details are given of that, and, in short, we suggest that one factory concentrated on the production of this very high-class steel, in conjunction with a shipbreaking establishment, would be a far more efficient method than the present one.

We then deal with what we describe as *General Inefficiency*, and just before *Commercial Losses* you will see this: "Instances similar to these can be recited *ad nauseam*, all going to show that there was little coherence in the technical planning of the company. It was realised that the works site was not of the best, and the chief engineer and others inspected a site at Poole, bordering on the sea. Chiefly on the score of the distance from coal the scheme of moving the E.S.C. works away from Sheffield was turned down. Instead the River Don works have been repaired piecemeal. The melting house was brought from Penistone, forging presses from Openshaw, machine tools from Openshaw and Grimesthorpe, and drop stamps from Elswick. As a contrast to this, the United States Steel Corporation and the Thyssen group in Germany have abandoned the practice of reconstructing a works that has fallen behind. They allow it to carry on while they set up new works of the most advanced type to take its place; when that is ready the old is dismantled and either abandoned or rebuilt entirely. The other heavy arms firms do not appear to be run on any sounder lines."

If it be asked how, despite these inefficiencies, they manage to continue in business, the reply can be found in a slight twist of the famous question and answer: "Why do heavy arms firms make profits?" "Because they only have other arms firms to compete with."

Now, we suggest, Sir John, that the matter should be taken over by the government, that the government should run an efficient, up-to-date works. If the old argument of expansion is put to us—and we realise that expansion is necessary—we call your attention to the passage on the fourth page of Part VIII, about three-quarters of the way down the page on the right hand side, which shows you exactly what the available furnaces are. Those are what you have got. These are not things that you can elaborate or improvise quickly on the outbreak of war. They are not like shell making machines, or anything of that sort, where you can at very little notice turn your machines on to making shells. They are

* Appendix pp. 206 to 210.

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the furnaces you have got making heavy ordnance and armour plate, and on those you will be dependent, whether you have private control or public control. We should suggest, and we do suggest on that page, that the right time to have a ministry of munitions is not after a war has broken out, but before it breaks out. By a ministry of munitions I mean of course some government department concerned to see into these matters, and we would suggest and readily accede to the view that the amount of plant and furnaces is a matter which in the nature of things cannot be improvised, and which should be run in a thoroughly up-to-date manner, and technically should be such as to allow you room for reasonable expansion in the event of an outbreak of war. But we ask that the taxpayer should be preserved from the inefficiency of the present system, which, as I have said, has in a small area all the disadvantages of an old-fashioned lay-out, and none of the advantages of a consolidated, up-to-date, improved position such as, we are bound to say, you do broadly speaking find with the L.C.I. in its chemical industry.

1058. *Chairman*: Have you finished with the heavy armaments?

Sir William Jowitt: Yes.

1059. *Chairman*: Are you going to call a witness on heavy armaments?

Sir William Jowitt: No, I am not, Sir. I have nobody I can call.

1060. *Chairman*: At some time, some of us will want to ask some questions in connection with the explanation of some of the passages in your evidence. Then, if there is to be no witness called on this point, we should have to ask you about it?

Sir William Jowitt: Yes, Sir John, certainly.

1061. *Chairman*: Would it be convenient for you to do it when you have finished your statement as a whole?

Sir William Jowitt: It would be very convenient personally, in that I do not pretend to be a technician, if you would let me know on what line your questions would be, so that I can find out during the interval what the proper answers are. Otherwise, if it is not a technical question, I should be pleased to give the answer which I believe to be the correct one. If they are broad questions of principle, I shall tender Lord Marley as a witness, though he does not pretend to be a technical expert on any of these engineering matters. I will tell you exactly, in order that you may decide, the witnesses I propose to call. I have got here—

1062. *Chairman*: I think it would be probably better that you should finish your statement. We know now that there is no evidence coming on heavy armaments, and therefore we must deal with that independently of the other sections.

Sir William Jowitt: Certainly, Sir John.

Then I said I had finished with heavy armaments, and in a sense I have; but I suppose one ought to include the building of ships of war in the category of heavy armaments, and the facts are set out there on the sixth page of Part IV of our case.* You will see there, and it is fair to say, that the matter is differentiated in that we do not here make any attack on efficiency. You have got, though not a large number of people, a considerably larger number of people than you have in the heavy arms industry. You have got, as I have already pointed out, of course, by reason of the very nature of the thing, a measure of publicity in connection with shipbuilding which we seek to have in connection with the manufacture of arms, and you have also got this advantage, of course, that you cannot start building a ship for a foreign country unless you get the approval of your government here. It is not merely given *ex post facto*. The facts in relation to it are set out, and you will see that

there are six main firms, Vickers-Armstrongs; John Brown, Scott, Swan Hunter, Fairfield, and Cammell Laird. Vickers-Armstrongs and Cammell Laird are virtually the same, Cammell Laird's interest being taken care of by the Vickers-Armstrongs Company. They are two separate entities but really under one control. The others are, so far as we know, independent. They have, of course, points of contact; they are members of the Shipbuilders Security Company. The Fairfield Shipbuilding Company we really know very little about. So far as the resources available to us go, we have looked up the returns in Somerset House, and we find that the company is controlled by a company called the Shipbuilders' Investment Company. When we look up to examine the shareholders of the Shipbuilders' Investment Company, we find that the controlling block of shares are in the hands of various individuals all described as "Esquires" and they all have this in common, that they are clerks in the well-known banking house of Kleinwort; but we really have not the least idea who owns those shares.

Then we deal under *Marine Engineering* with the smaller naval firms, the other naval firms, and I do not think I should serve any useful purpose by calling your attention to any further point. I think we have set out there what the position is.

Then I come to explosives, and I am going to call a chemist who will be able to answer any general chemical questions which I think the Commission may desire to ask. I have no doubt that all the facts that are set out and all the chemical names are completely familiar to every person in this room except myself. I do not propose to air my ignorance by going through these words, or even trying to pronounce a great many of these names. The witness, I understand, will make these suggestions to you. The chemical industry, unlike the industry we have been discussing, heavy arms, is very largely, and indeed mainly, concerned with perfectly pacific commercial purposes. It touches the realm of arms only in two places, and perhaps a third rather incidentally. It touches it in regard to explosives and it touches it in regard to poison gases. It touches it in the third place in that it so happens that Imperial Chemical Industries, having taken over what used to be in my young days Kynochs, are concerned and do carry on a pretty thriving business in these days in supplying small arms ammunition; but that is a mere accident, of course, that it happens to be this company.

The I.C.I. is a Company which the writer of this piece of evidence does not, as you will observe, criticise. He believes it to be run and founded on modern and up-to-date lines, and to be well and efficiently run. The company, however, has very large ramifications, enormous ramifications, in this country, and even more striking international ramifications than Vickers-Armstrongs. For instance, it is obvious from the document we have got in the American Inquiry that they have selling arrangements with Du Pont de Nemours of America, they have arrangements with I. G. Farbenindustrie of Germany; and we particularly ask you in the course of the evidence which you take to see that all these agreements are forthcoming, in order that we may find out exactly what the extent of the matter is. In so far as it deals with armaments at all, its concern, of course, is to sell explosives, and for the reasons I have given, small arms, and one wonders— one has no information to-day—about poison gas.

One of the very unsatisfactory features of the present system, if I understand the law right, is that the licensing system which we have got at the present time does not extend to poison gases. At any rate, it is possible to export chemicals which, when mixed with some other chemical, may form a most deadly gas, which can only be used for military purposes.

Our suggestion with regard to the chemical industry is this. So far as explosives are concerned, it

* Appendix p. 176.

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would be, for technical reasons, impossible to isolate the explosive which is required for military purposes, and that which is required for pacific purposes, for instance, for the work of blasting. We understand that 60 per cent. of the output is used for military purposes. We suggest that the state should take over the explosive industry as a whole. It would not be the least difficult to do so. It is already isolated as a separate department, the explosives department of this company, and I believe the factories in which the explosives are made extend to various portions of the country and are not congregated in one area, but extend right down from Cumberland to Cornwall. There is no technical difficulty in taking over the explosives industry, apart from the rest of the chemical business of the company, if it is desired to do so.

However, when you come to poison gas, you come to a rather more difficult position, because, of course, the component parts of poison gases may be used, or are used largely, for quite legitimate commercial purposes. For instance—I speak as a child in these matters—I think I have been told that the ordinary chlorine which is used for commercial bleaching is a component part of one of these poison gases. For some of these poison gases we suggest that the manufacture be absolutely prohibited, that is to say, of course, without some express governmental sanction, and that the export of them be absolutely prohibited. We do not desire that these deadly gases should be exported from this country either under licence or without licence. We desire that the export of these deadly poison gases be absolutely prohibited, and that the manufacture of these poison gases be most rigorously controlled by the government department concerned. That, of course, is the alternative to the solution which, for wholly other reasons, for general reasons of policy, would commend itself to the Union for whom I am appearing, namely, to take over for the state at a fair price, compensating and so on, the whole of the industry. That is the conclusion we have come to and the conclusion which we desire to suggest to you about that.

Then that brings me to say a word or two about aircraft, and that you will find is in Chapter 4, of Part IV*. Some of this I might perhaps read to you, because I think in the long run it will save time. We start off with a quotation from the *Manchester Guardian* which I think our evidence fully justifies:

"The aviation industry has now become an armaments trade and little else. Up to this year it was producing in England only a few hundred civil planes a year. Its main work has always been predominantly military. Most of the 234 machines and 409 engines it exported in 1933 (the last year for which we have a record) were destined for military service. Now, under our new programme, the military function becomes overwhelmingly the chief one. More new military aeroplanes (1,500) are actually to be produced this year than the whole of the civil fleet at the present in existence—1,200 aeroplanes, a figure which includes sport and pleasure craft of all ages and sizes. The manufacturing side of the air industry thus becomes little but an enormous war arsenal."

Now, you will find, Sir John, the relative figures given for the Royal Air Force, the export trade, and the home civil. Of a total of £8,000,000, the Royal Air Force takes £6,000,000 of the £8,000,000, the export trade £1.5 million, and the home civil £0.5 million. I am unable to specify what proportion of the 1.5, the export, are civil aeroplanes and what are military, but for the reasons I have given it would be fair, I think, to assume that the very great majority of the £1.5 millions exported would be military machines and not civil machines, and only a negligible quantity, I think, would be civil.

Now, of course, the air industry is peculiar in that it has grown up, and there is nothing at all corresponding to a naval dockyard, or Woolwich Arsenal, such as would enable us to have any check on the sort of prices which various aeroplane manufacturers charge. The matter, as you all know, is to be adjusted and dealt with so far as possible by a costing system, and everybody knows how valuable a costing system may be; but if the organisation is ineffective and wrong, of course not even a costing system will save it.

We suggest that the organisation is wrong, and for the reasons here given. May I call your attention to a passage in Chapter 4 of Part IV, under the heading *Research and Technical Development*, the second paragraph:

"The experimental work is done about half and half (in cost) by the private industry and by public service. The industry builds all experimental aeroplanes and engines, mostly at public expense. This work is naturally less profitable than production orders. For the smaller classes of war planes it is usual to have competitive models built to a common specification by a number of contractors. The fortunes of firms swing to and fro with their success or failure in these competitions."

Then, dealing with the defects of the present system in Part VIII, the writer of this evidence, whom I shall call before you, says this:†

"*Military and Civil Aviation.* The industry is of a type and at a stage of development where the problems of nationalisation are fewer than in the heavy armaments industry, for example. The factories are all purely aeronautical and they are mainly dependent on government orders excepting de Havilland and the very small firms. The problem of civil aircraft, however, and their convertibility to military aircraft raises special issues for the aircraft industry. The production of civil and military aircraft might well be separated, but in our opinion the case for abolition of private trade extends to the civil as well as the military section. The problem of adaptability raises vital problems from the international point of view and more particularly would seem to indicate the doubtfulness of any solution of the problem independently of a scheme for the international control of aviation."

So you will see we suggest taking over the whole industry, civil and military, the civil side being a small part.

1063. *Chairman:* When he says "independently of a scheme for the international control of aviation," does he mean that if there is such an international scheme, his suggestion might not be necessary?

Sir William Jowitt: It might not then be necessary to take over the civil; but the problem of adaptability is such that unless you get something of that sort it is so very difficult to draw the line.

Then under the heading of *Research and Technical Development* he suggests this—and here the witness who writes this, and whom I am calling, speaks about what he knows; he was head until recently of the Aero-Dynamics Department at Farnborough, so he can speak with authority on this matter—

"It is suggested that two distinct research organisations are required. One should serve the particular purpose of air force development, and the other would conduct general and fundamental research and aim at the development of commercial and civil aviation. While the first organisation would not normally publish its results, all investigations by the latter must be fully published and their laboratories and experimental plants open to inspection at any

* Appendix p. 192.

† Appendix p. 212.

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time. Close contact with both designer and user is essential. It is suggested that some method of organisation is desirable which would bring together, in deciding on technical policy, the Air Staff and the chiefs of design, production and research, for any scheme to be successful. It must be based on the proper co-ordination of knowledge and ideas in the fields of research, design, production and operation. It is this co-ordination which is defective at the moment, as it must be when the work is divided amongst the parts of a competitive private trade and a public service. Under the present system, trade jealousy inevitably prevents the component firms of the industry from sharing ideas and discoveries the combination of which, at any moment, might lead to the best available solution of the problem in hand. The Ministry and its great technical staffs are gravely handicapped in providing such co-ordination, for they labour always under the disadvantage of being prohibited from free communication in the interests of 'fair' competition. This position would be greatly simplified by the necessity of complete publication."

Then he goes on, and he says that aircraft design is empirical, and progress calls for a vast amount of experiment; and then he says at the top of the next page:—

"The experimental work of the industry, on the other hand, is almost entirely confined to the design and construction of aeroplanes and engines. *Ad hoc* experimenting, of which there is already too little done, cannot be undertaken by the private industry, and in any case, the conditions of service in a small firm would not conduce to this work being well done. The problem of designing staff must be considered in this connection. A result of the large number of independent units in the industry in relation to the volume of work is a relative poverty in each designing staff. Not only do the firms not specialise as they might each on its own type of aeroplane, but they are unable to set their best men to specialise on parts of a type or particular aspects of a design. In the result, good general conceptions may fall from inadequate attention to detail or good detail be lost in poor general conceptions. More effective drawing offices could be built up in the bigger (because fewer) units made possible if the industry were nationalised."

That, Sir John, is the view of the matter which this witness will put before you. You must have constant connection between the man who sits down at the model and thinks, and the man who is carrying out his thoughts and putting them into practice.

The conclusion of the whole matter, subject to the next point which I have got to consider, which is the licensing system—I must say something about that—is brought out on the last page. I do not mean merely the conclusion of the aircraft, but of the whole matter. This, with your permission, I should like to read. I am reading from the right-hand column at the end:—

"Conclusion: In summing up this Part VIII certain basic schemes have been outlined for the guidance of the Royal Commission in considering the problem of practicability. If a British Government wishes to have an armaments industry free from the inefficiency and abuses inherent in private manufacture, they can have it by taking over the industry, but the detailed methods are for the Commission or the Government to provide, although the Union of Democratic Control would find no difficulty in presenting such a scheme if they felt that it was their function to do so. Since the Royal Commission may not see its way to accept these views, the Union of Democratic Control in order to assist it in its work has put forward certain modified systems of control which have been worked out in consultation with technical experts."

I may say that under the heading "Control" my clients would certainly ask you to consider what has been suggested in the American Inquiry by a member of the arms trade itself, namely, that at least it would be legitimate that the Government should put this armaments industry under that measure of control which, as in the case of a public utility company, limits its profit, as in the case of a gas company or anything of that sort.

"The approach may be summarised as follows:—

(1) *Nationalisation of the Arms Industry.*

- (a) Heavy Arms.
- (b) Chemicals and Explosives.
- (c) Aircraft.

Such nationalisation would have to be supplemented by control of the sources of raw materials, e.g., iron, nickel, etc."

Of course, by that is meant this. Obviously the arms industry to-day, in so far as it is relying for its raw materials on Swedish ore, for instance, is dependent upon the possibility of ore coming from Sweden, and for that purpose it makes arrangements now amongst its members for that purpose. Any government taking over must of course take steps to see that it is not at a critical moment going to be deprived of its requisite ore. That applies just as much to a private industry to-day as it would to the Government.

(2) *Nationalisation of the Armaments Sections of the Respective Industries.*

The problem of separation of the production and process from normal industrial work has been dealt with and it has been shown that the technical problems involved can be overcome.

(3) *Control through Licensing, Inspection and Publicity.*

If the industry is still left in private hands, it is possible to increase control by the following means:—

- (a) Improvement in the licensing system already specified in Part VII."

That I am going to come to in a moment. There are several bad gaps, as we see it, in the licensing system to-day.

(b) Financial inspection and control.

(c) Separation of the financial arrangements for war and civil research with full publicity.

(d) Inspection and control internally by democratically elected workers in the firms concerned.

(e) International inspection and control.

"In the above evidence the Union of Democratic Control has emphasised the inefficiency of the present system of private manufacture and the various abuses that attend it. It has been shown by Dr. Addison to be totally inadequate in time of emergency. The evidence of corruption and irresponsibility brought against the armament rings has never been rebutted. The system which closely connects the arms trade with the public service, while avoiding the salutary sanctions of public control, is contrary to every principle of responsible government. It gives rise to suspicion of evil even when evil may not be present and it makes it only too possible for interested parties to promote their interests in a way which increases national antagonisms and fosters the armament race which is admittedly one of the contributory factors leading to war."

We do not want to overstate the matter. We have never stated, and we do not believe now, that the fact that the arms trade—that there is an export trade in arms—is the principal cause of war, or anything of the sort. We believe that in a very difficult situation it is a factor which makes the likelihood of war greater, and we think that the mere inducement to other countries to buy arms, necessitating that their neighbours correspondingly buy arms, and when everybody gets arms, and one gets frightened of the other, is a contributory cause which may lead to lighting the spark which may cause the conflagration which burns down the house.

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It remains for me to say something about the licensing system, and to show you how that is inadequate.

(After a short adjournment.)

1064. *Chairman*: Sir William, I have had an opportunity of reading that letter now, and, if you press it, strictly speaking I think it is admissible within the terms of my ruling; but at the same time it is the sort of letter I would sooner not hear. But still, you must exercise your own mind about it.

Sir William Jowitt: Sir John, I should like to be guided by you, if I may say so. I do not want to stand on my strict rights. As you have indicated that, if you think it better that I should not—

1065. *Chairman*: If I must rule, I must rule in accordance with the principle that I laid down; and under the conditions of that principle it is admissible.

Sir William Jowitt: Well, Sir John, having regard to what you have said, I shall not press it.

1066. *Chairman*: I am obliged to you, and to those who instruct you.

Sir William Jowitt: Now, Sir John, I had left myself the matter of licensing to deal with. I do not suppose I can help you very much, because to you and to Professor Gutteridge, at any rate, the law on the topic is easily available. It depends, of course, so far as the law is concerned, upon the Customs and Inland Revenue Act, 1879, Section 8, the Exportation of Arms Act, 1900, and the Finance Act, 1921, Section 17; and the Order in Council which I think you want is the Arms Export Prohibition Order of 1931. I have a copy of it, but it will, of course, be available to you; it is 1931, No. 413.

1067. *Professor Gutteridge*: That is the S.R. & O. reference?

Sir William Jowitt: Yes; and then, of course, the Board of Trade publish a list every year, as you know, advising people for what commodities licences are required, and specifying the general licences in force.

I speak subject to correction, but it seems to me that the position is this. For arms of all sorts a licence is required; for explosives a licence is required; but for poison gas there is no statutory requirement for a licence for export at all. The only possible exception is this, if you bring it under Heading XVII of the Order in Council, which is in these words: "Appliances for use with arms and apparatus exclusively designed and intended for land, sea or aerial warfare."

1068. *Professor Gutteridge*: There was a case, I think, in which pyrogallic acid was dealt with. I think that was the case of *Attorney-General v. Brown*. I think that included pyrogallic acid.

Secretary: That was before this Order was in force, I think.

Professor Gutteridge: Yes, that may have been under an earlier Order.

Sir William Jowitt: It may have been under one of the Defence of the Realm Regulations. But I think if you look at the Order you will find that the only possible statutory prohibition is under these words: "Appliances for use with arms or apparatus exclusively designed and intended for land, sea or aerial warfare." Now I should not myself think it does, but it is a matter for you to consider as to whether poison gas would come within that category at all. It is hardly an appliance for use with arms or apparatus, and at any rate you will consider whether or not there is any prohibition at all in regard to the exportation of poison gas. The difficulty, of course, arises that you may have poison gas which is all ready for use as such, or you may have what the chemical descriptions in this case show, poison gases of this sort; you may have a commodity which merely needs some other substance mixed with it to make a poison gas; and that would

have to be covered by the licensing system, there is no doubt.

1069. *Mr. Spender*: Do you suggest that it is being exported?

Sir William Jowitt: I have no knowledge one way or the other. I have no reason for supposing the answer is "Yes," and no reason for supposing the answer is "No"; it is quite outside my case. It is a matter you might think it proper to ask questions about from those who can answer. We cannot.

The position with regard to licensing of aircraft is this. There has been in force for some time what is called a general licence for aircraft; that is to say, you can without permission export aircraft to any country, save one country, and that one exception is Abyssinia. You may export aircraft to Italy, for example, but not to Abyssinia unless you get a special *ad hoc* licence to deal with it.

We suggest that certainly the existing licensing system should be amended so as to include these chemicals of the nature I have indicated, in any event. As to the rest, our objection and our case against the inadequacy of the licensing system is this. First of all, we object very strongly to the complete absence of publicity. We believe that the more public these things are made, the better. There is no publicity; the names of the applicants are never divulged. It is the well-understood Parliamentary practice, and you will see set out in the first page of Part VII* of our case the answer which Mr. Runciman made, I was going to say quite recently, but I see it was on 7th June, 1932; but it certainly applies to-day: "It has never been the custom to give these particulars, and it is undesirable to do so." We do know, and the facts are shown on that page, that in one year 415 licences were granted, and only seven licences were refused. I suggest that the licensing system is very inadequate, and may very easily be dodged by anybody who is minded to do it.

As an illustration of that, may I ask you to look at Part 3 of the American evidence, at page 680. There is a letter which says this in connection with a consignment of guns to Bolivia, and where it was suggested that under the existing circumstances there would be a difficulty in sending to Bolivia. This is a letter from Mr. John Ball, of the Solely Armament Company, at the top of page 680: "We have, of course, heard from several sources that Bolivia wants A.A. guns quickly"—that is no doubt anti-aircraft guns—"but we do not think for a moment that a shipment or sale to Bolivia could be made direct"—the word "direct" is in italics—"while that country is at war. If, however, an American armament firm of some standing bought the guns, for eventual resale, things might be easier—or if the Columbian Government, who are not at war, bought the guns, they could no doubt have them."

Then in Volume 5 there is another indication of the same thing at page 1337. On June 11th, 1934, the Du Pont de Nemours Company wrote to Imperial Chemical Industries with regard to an inquiry for explosives: "Although the inquiry distinctly states that prices are wanted c.i.f. Montevideo, we suspect that the material is for Paraguay and since we wish to co-operate with our government in observing the embargo, we deemed it best not to quote." So that either by a device, if you have an order, you can use one of your foreign subsidiaries situate in another country which is not subject to the embargo, or you can very easily send your goods to the neighbouring country, and that neighbouring country can send those goods over the border; and you will find here very interesting confirmation of that. I have, and I think the Commissioners have, figures for the amount of arms and stores exported from Great Britain, and I have taken out the four countries which during the Disarmament Conference have been at war, China and Japan, and Bolivia and Paraguay.

* Appendix p. 203.

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[Continued.]

1070. *Chairman*: Where are you in fact taking those figures from?

Sir William Jowitt: These are official Board of Trade figures. To China in 1929 the exports were £32,700, and by 1933, the last figure I have got, they have gone up to £223,514. The figures for Japan in 1929 were £129,696, and in 1933 £185,871. It seems that our largest export to Japan went in 1932, because we went up there to £321,701. In Bolivia in these years we were down as low as £26,466, but in 1933 we moved up to £331,606; and in Paraguay, in the course of these five years we were as low as £437 in 1929, and we moved up in 1933 to £87,486.

There is not a shadow of doubt that quantities of military ammunition exported from Great Britain have vastly increased. If you take the number of cartridges, we did not export any in 1929, 1930 or 1931; but in 1932 we exported 500,000, and in 1933 we exported 15,850,000 loaded cartridges. That is to Paraguay. To China we exported in 1929 as low as 393,000, and in 1933 it has risen to 33,202,500. So that it is obvious that we are exporting very large quantities to those countries, and if you ask, as you no doubt will do, for another Board of Trade document, a Consular Report, you will find this statement in Document 27234 of 1932, dealing with Paraguay's foreign trade for the first six months of 1933. After setting out the figures it says: "It is unlikely that any war material is included in this total, as these are frequently brought into the country secretly, being landed at various places along the river, and have not consequently passed through the Customs House."

So that in considering the official Paraguay returns you must remember that these things as a rule do not pass through the Customs House in the ordinary way, and the fact remains that it appears that that is an illustration of the way that goods may come into Paraguay, although they are consigned, let us say quite honestly, to a purchaser in Montevideo or Uruguay who makes arrangements to run the guns through, or pass them through, to Paraguay.

The fact remains that we in this country have been supplying arms to China and Japan, and to Paraguay and Bolivia; and we suggest to this Commission as forcibly as we can that this is a class of business or trade, whether it brings in profits or does not, from which we desire to be dissociated, and we suggest that the vast majority of people in this country will have no sort of use for making money by supplying munitions of war to people on both sides in this particular sort of conflict.

We further suggest that the licensing system is inadequate and ineffective in that it applies too late. In dealing with ships, for instance, as I have already pointed out, by reason of the nature of the thing it is obvious that no firm can start building a ship without the approval of our government. On the other hand, any firm can start building a fleet of tanks, or of howitzers, or what you will, without asking the government at all, and then, of course, have only to go to the government to get the licence for export. It would be very much better if, before any one of the firms in this country built a single thing for a foreign government, it should be done, as we suggest it should be done, with the full knowledge and full approval of the government; and, we hope, with full publicity.

We make recommendations on this point at the end of Part VII*.

"To summarise our criticism of the present system of licensing:—(1) It does not cover the export of aeroplanes."—I have explained that what we mean by that is not that the licensing system does not apply, but that by reason of the general licence which has been given for all countries excepting Abyssinia, it has been rendered virtually inoperative.—(2) It does not cover the export of chemical substances which are of military use only and certain elements required for the manufacture of explosives. (3) Information is only published after the

arms have left British ports. (4) Information is inadequate. It does not give the name of the firms involved. It does not give particulars of cases where permits for licences are refused. It does not cover manufacture nor the essential inspection which should accompany manufacture. (5) It does not prevent British firms manufacturing or finishing arms abroad and thus avoiding the licensing system. (6) It does not cover the preliminary unofficial inquiries made by prospective applicants."

Then we add: "Assuming the trade in arms"—and we suggest this whether the government takes over the trade in arms or not—"Assuming the trade in arms, the following are essential reforms, but it must be stated that only the prohibition of the export of arms and munitions would remove the abuses inherent in such traffic:—(1) Publication of licences. (2) Publicity for orders from state and private works. (3) Publicity for purchase by home and foreign governments. (4) Licences to manufacture and full publicity for such manufacture. The suggestions for such proposals made during February, 1935, were supported by all nations except Great Britain, Italy and Japan."

1071. *Chairman*: May I ask just one question here. The four recommendations that you have just read out do not touch No. (5) of the objections, do they?

Sir William Jowitt: No. You could not, as we say, unless you prohibit the export altogether, and therefore I do not think you need deal with No. (5) unless you took over the trade.

1072. *Mr. Spender*: What suggestion are you referring to?

Sir William Jowitt: That on the last page of Part VII, on the right hand side, under *Conclusion*.

1073. *Mr. Spender*: I have the reference there, but I wanted to know a little more specifically when were these suggestions made, and when were they turned down by our government.

Sir William Jowitt: In February, 1935.

1074. *Mr. Spender*: Where—at Geneva?

Sir William Jowitt: At the Disarmament Conference.

1075. *Dame Rachel Crowdy*: I should like, if I may, to go back to something which you mentioned a few moments ago. You mentioned that aircraft was exempt from licences except in the case of Abyssinia. I think I am right in remembering that it is nothing to do with the international situation, but it is part of the treaty, the old treaty, to which Italy, France and England were parties?

Sir William Jowitt: That is my recollection.

1076. *Dame Rachel Crowdy*: It is nothing to do with the international situation, and one should have that in one's mind?

Sir William Jowitt: That is so.

That represents the case I have to put before you. May I just conclude with a consideration of this sort. We are only too conscious of the fact that the case we have represented to you is incomplete. We have not been able to present a case with that full wealth of detail which we should have liked. The case which I have had the honour of presenting to you with regard to the heavy arms industry, we have had—when I say "we" I mean my clients have had, because I have had no part in the preparation of this document—we have had the collaboration of a number of young and intelligent people who are concerned in the trade. For reasons I have indicated, I cannot call any of them before you. In dealing with the chemical trade, similarly we have had, and I myself have seen, a number of equally young and equally intelligent people who are concerned in the chemical trade. Those gentlemen I cannot call before you for reasons which you will readily appreciate. They are commercial chemists. The best I can do, therefore, is to call before you a gentleman who has the technical and educational qualifications of a chemist, who is a chemist, but who does not pretend to be an industrial chemist. In regard to the aircraft point of view, I can call

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before you Mr. McKinnon Wood, who was very recently head of the Aero-Dynamics Department at Farnborough, and he will be able to tell you the sort of difficulties that he came up against in the course of his work. But we have come here, and I can say quite sincerely that we have thought it right so far as we can to get the material, to put before the Commission every fact which we have been able to ascertain. We offer those facts up to this Commission, thoroughly conscious that it is a wholly uncompleted story; but it is as far as we have been able to go. We have suggested to you—and I feel that the responsibility is yours, and not ours; we have come to assist as far as we can—on the first two pages of the case we put before you, a large number of documents which we humbly submit that you may, in the course of your consideration of this matter, think proper to call for. We have indicated, on the second page, a considerable number of witnesses who we think could throw considerable light upon this matter, and in view of our criticisms of the works lay-out of the heavy steel trade—criticism which, you appreciate, I do not apply at all to the chemical trade—we have thought it right to suggest that this Commission should undertake an inspection of the works. I say I would do that if I was in your position, but I say frankly it would

mean little to me, because I have not sufficient technical knowledge; but you might think it advisable to appoint some government official who does understand these things, to go round and report as to how far there is any foundation in our case. For the rest we suggest that we have at least made out a case which necessitates, in the public interest, and to satisfy public requirements, the most stringent and complete investigation—investigation which we cannot make, which we have not the material to make—and we ask you to say that before this Commission reports, this investigation should be made in the most thorough and complete manner, in order to see what does come out.

I will call my evidence quite shortly. With regard to the heavy steel industry—as I say, I cannot answer any questions myself, because I have no knowledge of the matter—I can very easily get for you by to-morrow morning any information which you think would be of use to you in conducting this Inquiry.

1077. *Chairman:* We think that the most convenient course would be that you should call your witnesses, that any questions that anyone may desire to put to them should be put, and then at the end of the examination of the witnesses we will put any questions that we desire to ask.

Sir William Jowitt: I am much obliged.

Mr. RONALD McKINNON WOOD, O.B.E., M.A., F.R.Ae.S., called and examined.

1078. *Mr. McKinnon Wood:* My name is Ronald McKinnon Wood. I was employed in the Royal Air Force establishment from 1914 to 1934, in the Air Ministry's Research Department at Farnborough. I have seen the aircraft industry, chiefly on the side of the development of new aeroplanes for the Air Force. I was Head of the Aero-Dynamics Research Department there from 1919. The first point I want to emphasise is that the new model which is submitted bearing the name of some aircraft firm for testing by the Air Force is by no means the product of private industry; it is the product in proportions of 50-50 of state research and private enterprise in design. The aeroplane firm's designing office is working on the basis of an immense amount of research and experimental work conducted by the Air Ministry and the Department of Scientific and Industrial Research. The aeroplane is designed under close supervision from the Air Ministry to a fairly elaborate specification, so that the industry is working a great deal with state assistance and under very close supervision.

One has, to my mind, a rather large number of competing drawing offices, and I have felt for a long time that the industry would be improved by a reduction of the number of units. I have been given to understand that the reason for the Air Ministry's policy in maintaining so many firms was for expansion in time of war. I am quite unable to see that having a large number of designing and manufacturing units—that is to say, having a scattered industry—is of any assistance towards expansion in time of war. It seems to me that the essential thing for rapid expansion is a centralised control. The result of that large number of units is that it is impossible for any one unit to have a designing staff of the best strength, that the more units there are, the weaker must be the designing strength of each unit; it becomes impossible to put first-class men on to specialisation on particular lines. But that is really a question of rationalisation rather than nationalisation. The effect of having a number of firms competing in design is that if any new idea arises in any one firm it will ultimately, no doubt, come out for general use, but it is a trade secret at the moment. Very often the ideas that originate in firms are complementary ideas and the best results are obtained by getting them as quickly as possible together. Very often they are ideas of universal application and, therefore, they ought to be applied at once to achieve the greatest rate of progress. I often found myself in the difficult position—acting as one does in the

government research service, to a very large extent, as a free consulting engineer to the aeroplane designer—in the difficulty that I was unable to bring these complementary ideas together, in the interest of fair competition between rivals who were competing in business to a common specification.

If you take the history of the aeroplane engine, you can trace the development of the different aircraft engine firms and you find that they began very much in the Royal Aircraft Establishment. Sir William this morning referred to Mr. Green taking drawings with him from the Aircraft Establishment at a time when designing at the Establishment was stopped—that was, I think, in 1917, during the War. The Armstrong-Siddeley engine sprang out of the work that was first done at Farnborough. The same with the Bristol Aeroplane Company's engines; they developed not out of engines, but out of cylinders (which is the main part of the engines) that were developed at Farnborough. All along the line one has this co-operation and the basic work is done in the state institution; so that the new model is produced partly by the state and partly by private enterprise, but with these disadvantages that I have been indicating. Incidentally, there are aeroplane weekly papers, one of which has been particularly venomous in its attacks on the Air Ministry and the Aircraft Establishment during the last 20 years, which does not tend to promote that harmony of feeling between all the people who are engaged in what is really a common enterprise. I simply mention it because, if there were no private trade, I think that trade paper would undoubtedly disappear.

1079. *Sir Philip Gibbs:* Might we have the name of that paper?

Mr. McKinnon Wood: The *Aeroplane*. Another important question is that of secrecy, on which a great deal of stress was laid by the committee which inquired into the future of Woolwich Arsenal and reported about 1918 or 1919. Secrecy can obviously be much better maintained in a government service than it can when private enterprise is coming in, and the test pilot—I have no accusations to make against anybody, I merely wish to point out where leakages may occur under the system—of the British aircraft firm visits the Air Force testing station; at the same time he is the salesman of the firm to foreign governments. As a corollary of the need for maintaining secrecy, it often has the result that the designer is denied information that

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[Continued.]

would be very helpful to him in his work. I remember one case in which experiments had been carried out upon a model to find the flow of air over the deck of an aircraft carrier, for the guidance of the Admiralty in designing the ship, and the Admiralty refused to allow that information to be communicated to the designers of aeroplanes which had to alight on the deck. It is quite possible that that information might have been made use of by the designers of aeroplanes. That illustrates the difficulty that is bound to arise occasionally in regard to secrecy.

Sir William was reading evidence which pointed out that the fortunes of firms swing to and fro with their success in design competitions, that the orders for the reproduction of designs in quantity naturally go, at any rate in the first place, to the firm that designed the aeroplane which was successful in the competition. I suggest that if you have an industry in which the demand fluctuates a great deal from firm to firm, where one firm has most orders one year and another firm most orders another year, it must be uneconomical in production. At the same time, there are other objections. We have no real competition in the case of producing large numbers of aeroplanes because the order for the large number goes to the firm that designs the aeroplanes. There are, obviously, very strong reasons for that being so. There is no state production as there was during the War, to provide a check on the costs. Designing and producing at the state factory was stopped, as I said, in 1917, and I have little doubt that it was stopped as the result of the pressure that was brought to bear by the rising aircraft industry, which resented the factory setting itself up as an adviser and a supervisor of the work of the industry and a competitor at the same time. And I rather think it was felt that it was unfair competition because the state factory had access to the very latest experimental results. If that is so, it is an interesting commentary upon the claim that private enterprise is more efficient than state factories. Anyway, the factory was closed down as a designing and producing factory and remained as an experimental establishment. The attack that was made in the Press and in Parliament on the factory was an attack on the ground of the inefficiency of its drawing office staff. But the superintendent, the engineer in charge of designing and the heads of sections of the drawing office were promptly absorbed in good posts in the industry—which rather seems to counter that statement.

With regard to exports, I think it is claimed that the export of aircraft helps our aircraft industry to equip our Air Force fully, for a number of reasons, one of which is that you get the stimulus of competition. I think there is nothing in that at all because it is quite clear that the military aircraft that are exported are exported to the governments of the smaller powers and they will only take the aircraft because they have been accepted for our Air Force. So that this export trade leads to no new production and cannot, therefore, lead to stimulation in design. The chairman of one of our aircraft firms said that those aeroplanes that are exported are all ones that have been approved for the British Air Force and they are always about five years out of date.

Again, it is claimed that it reduces the cost of production. Actually, it amounts to an increase in output of something like 20 or 25 per cent. You cannot make an appreciable reduction, due to increased output, in the costs of production unless you are dealing with something that is very much bigger than that.

Another argument is that it allows room for expansion, that in the event of an emergency the export production can be switched over to meet the demands of our government. That gives you an expansion of 20 or 25 per cent. What would be required of course, in a serious war would

be hundreds per cent. So that the argument that the export trade helps the equipment of our Air Force seems to come down chiefly to that small amount of expansion.

With regard to the difficulty of nationalising the industry: We have an industry here which has very little connection with other industries. It has certain connections with the motor car trade, but all the factories producing aircraft or aircraft engines are quite distinct, and the complication that appears to arise is the difficulty of separating the military production and the civil production. I think there is no doubt about it that if there are serious objections to an export trade in military aircraft, there are also serious objections to an export trade in civil aircraft. The civil aeroplane is an article for which the world has, as yet, a very small demand, but it is immediately useful for military purposes. It depends upon the kind of warfare that one contemplates. The civil aeroplane would be no use as a fighting aeroplane. It would be no use for various purposes for which our military aeroplanes are built; but for indiscriminate bombing of centres of civil population—which is the kind of warfare which is advocated by a number of eminent air authorities as the right use of the air weapon, however beastly we may think it—the civil aeroplane would be immediately useful and civil aeroplanes can be built for quick conversion to military aeroplanes, the particular item that has to be provided for being the provision of places for gunners. With regard to the separation of civil aircraft, we have one big aircraft factory, de Havillands, which we can say is purely a civil factory and the small firms are almost entirely concerned with civil work. If it were desired to make a separation, the main difficulty in separating them would be the provision of air liners for Imperial Airways, they having been mostly built by firms concerned with armaments—Short, Armstrong-Whitworth, Handley Page. I personally would favour the nationalisation of the whole aircraft industry and the subsequent separation of the civil from the military production.

One further point: I would like to draw attention to the fact that under the present system, in my opinion, quite important military material in regard to aircraft has been passing to Germany. Among the aero engines that have been passing there have been super-charged aero engines. An aeroplane engine may be used either for civil or military purposes, but in general there is a difference between the civil and the military engine, and the super-charged engine is something which has required a tremendous amount of work to bring it to its present stage. It is the product of something like 15 to 20 years of research and experiment. It is possible that in these exports of aero engines to Germany a good deal of assistance in the way of information about the super-charging has gone with the engine. The firm of Smith's Accessories has exported to the German government enough ignition screens for 3,000 aeroplanes.

1080. *Sir William Jowitt*: What are ignition screens?

Mr. McKinnon Wood: They are screens for protecting the wireless in the aeroplane from interference from the magnetos.

1081. *Chairman*: You have given reasons why, in your opinion, the present system hampers, if I may use that expression, the proper rate and extent of development. That is so, is it not?

Mr. McKinnon Wood: Yes, Sir.

1082. *Chairman*: In spite of that, the development in design and development generally of the engine and so forth, has been remarkable and extensive in this country, has it not, even under the present system?

Mr. McKinnon Wood: Yes, Sir John; the development has been remarkable, but I do not see that

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[Continued.]

we have any standard to enable us to say how much greater it might have been.

1083. *Chairman*: True! Of course, one might say it ought to have been more; but it has been great?

Mr. McKinnon Wood: Yes. It might have been achieved more economically.

1084. *Chairman*: I do not understand your reference to the export market. On the last page but one of your statement, at the bottom of the right-hand column, under the heading *The Export Trade*, it says "There remains the problem of the export market, which is almost entirely confined to military aircraft." Do you see that?

Mr. McKinnon Wood: Yes.

1085. *Chairman*: That is not the fact, is it? Is there not a very large trade in the export of civil aircraft?

Mr. McKinnon Wood: Unfortunately, the figures that are given do not discriminate between the military and the civil, and I am speaking simply from my impressions, that the export trade would be mainly military.

1086. *Chairman*: Is the whole of the export trade in reference to aeroplanes confined to complete machines? Is there not a considerable export trade of engines or of parts of engines and so forth?

Mr. McKinnon Wood: The figures are given at the end of Part IV*. There are three columns—the first is complete aeroplanes, the second is engines and the third is spares.

1087. *Chairman*: Yes. That table of exports of aeroplanes is not confined to military aeroplanes, is it, or military engines?

Mr. McKinnon Wood: No, Sir.

1088. *Chairman*: It is hardly accurate to say, is it, as you do in Part VIII, that the export trade is almost entirely confined to military aircraft?

Mr. McKinnon Wood: I cannot produce any evidence to support that statement, Sir.

1089. *Chairman*: On the last page of the statement of evidence, under head (5), it is recommended "That the export trade, which in any case is not desirable, is not such as to present any special difficulty." Assuming that the trade in aeroplanes can be nationalised, then if there was any export at all it would be export by the government?

Mr. McKinnon Wood: Yes.

1090. *Chairman*: They would be the traders if they chose to be.

Mr. McKinnon Wood: Yes.

1091. *Chairman*: Supposing the trade is not nationalised, is there not a very substantial trade in civil aeroplanes which can hardly be said to present no special difficulties? Are you suggesting here that the export trade in civil aeroplanes or engines for civil aeroplanes should be forbidden? It seems to me to present a great many difficulties.

Mr. McKinnon Wood: It would then be a government trade in civil aeroplanes.

1092. *Chairman*: If it was nationalised; but supposing it is not nationalised and you are merely trying to indicate, as you do in this particular part of your case, how it may be controlled if it was not nationalised, there would be very great difficulties, would there not, in dealing with the export of civil aeroplanes and in distinguishing between civil and military aeroplanes or engines? I only want to understand what the proposition is.

1093. *Sir Philip Gibbs*: Have you not already drawn rather a sharp distinction between civil aeroplanes and military aeroplanes? You say there is a distinct difference.

Mr. McKinnon Wood: A 'plane is definitely a civil aeroplane or a military aeroplane when it is produced, but they are sometimes produced in a convertible form.

1094. *Chairman*: And the engine may be used for one purpose or the other.

Mr. McKinnon Wood: The engine may be used for one purpose or the other, but there is a ten-

dency now for the military machine to have the supercharged engine and for the civil machine, which is not required to fly so high, to have an un-supercharged engine.

1095. *Dame Rachel Crowdy*: Is your opinion that any civil aeroplane could be converted into a bombing 'plane but it could not be converted into a fighting 'plane?

Mr. McKinnon Wood: It could be used for bombing. It could be used for flying in the clouds over a city, where it was safe against attack, directed by some navigational means, and dropping bombs rather vaguely on the city. If it is to be made a bombing machine it has to be fitted with gun mountings, which might be almost impossible. So that to make an effective Air Force machine of it would involve a big alteration, but to use it for military purposes you need no alteration at all.

1096. *Mr. Spender*: You contemplate the establishment of a pretty big service, do you not? I should like to put this point to you: It is one that has been running through the whole of this Inquiry. The main criticism made against the private firms is that they lack this and that facility, and especially that they have not the power of expansion. Your evidence seems to imply that the state establishment, or whatever it is, will supply everything that has been found wanting in private firms. It is said on the one hand that there is room for expansion, for the production of a very large number of aeroplanes. We have had it put to us on the other side that there would be great economy, or no increased expenditure, involved in the state taking over the industry.

Mr. McKinnon Wood: In nationalising the industry I contemplate the state taking over the factories and then finding that there was too great a number of them and cutting down the number of factories, so that there would be fewer designing offices. At the same time, having done that, I think you could with great advantage spread the research and experimental services out, keeping some of it centralised but diffusing a good deal of it through the industry, bringing the experimenters into close touch with the designers. Because in designing aeroplanes you want a good deal of experiment conducted during the process of design. With regard to expansion, it is simply a question of having this centralised co-ordinated service, which, I think, would make it easier to expand, and I think the smaller the number of units you had the easier it would be to carry out the work and expand.

1097. *Mr. Spender*: The criticism made against private firms is that they have not made provision for expansion. I am only suggesting to you that the state would have to make that provision and that would involve extra expense.

Mr. McKinnon Wood: The state is more likely to make it than private enterprise.

Mr. Spender: That may be. I am only on the point of costs.

1098. *Sir Kenneth Lee*: Did I understand you to agree that the aeroplanes that have been exported were usually about five years behind the times?

Mr. McKinnon Wood: Military aeroplanes.

1099. *Sir Kenneth Lee*: Then we were not giving much away with a supercharged engine.

Sir William Jovitt: That is a civil engine.

1100. *Sir Kenneth Lee*: I thought the supercharged engine was supposed to be for military purposes.

Mr. McKinnon Wood: What I said referred to aeroplanes and not to engines, but, as I pointed out, it probably applies to engines too. I was quoting the statement of the chairman of an aircraft firm, who said the aeroplanes were always five years out of date.

1101. *Chairman*: He did not mean that literally I suppose, did he?

Mr. McKinnon Wood: He meant the design; it was five years since the design first appeared. It would be a good deal less since the aeroplane first appeared in the Air Force. The supercharged engine represents many years of work. I do not

* Appendix p. 196.

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[Continued.]

think that would be very out-of-date in five years.

1102. *Sir Kenneth Lee*: I think you said that 20 per cent. more or less of output was not very important. Surely if a firm were working only to 80 per cent. of their capacity and could rise to 100 per cent. it would make all the difference in costs, would it not?

Mr. McKinnon Wood: Now you have introduced the level at which the firm are working. It seems to me that you have introduced something extra into the argument. Supposing that a firm is working at 100 per cent. capacity and it builds up a 20 per cent. export trade and therefore increases its work by 20 per cent., there you have the case I am considering. I do not think it is fair to start by assuming that the firm is only working at 80 per cent. of capacity.

1103. *Sir Philip Gibbs*: You say that the design and production of aeroplanes and engines by our state aircraft factory was stopped in 1917. Can you give me the names of any types that were produced by our state aircraft factory?

Mr. McKinnon Wood: It produced the BE2 type, which went overseas with the Expeditionary Force. Then it produced the FE type of aeroplane, with the propeller behind. Then it produced a fast single-seater fighting aeroplane, the SE5, and it produced the RE8 in large numbers.

1104. *Sir Philip Gibbs*: As a matter of fact it did produce most of the types used in the first stages of the War?

Mr. McKinnon Wood: It produced a large part of the equipment and it produced engines which were used in most of those aeroplanes.

1105. *Sir Philip Gibbs*: Have you any idea yourself as to why the government abandoned that production?

Mr. McKinnon Wood: I always attributed it to trade pressure.

1106. *Sir Philip Gibbs*: Could you tell me whether the government handed over the designs of those military aeroplanes to private firms in the course of the War before the production of those types?

Mr. McKinnon Wood: Yes. At the outbreak of war those designs were put out to contract to a number of firms. Some of the aeroplanes were built at the government factory and some by private enterprise.

1107. *Sir Philip Gibbs*: You do not think it was due to better types being designed by private firms in the course of the War?

Mr. McKinnon Wood: My own impression is that there was not much to choose between the products of the private firms and the products of the government factory. Both the industry and the factory produced their failures and their successes. There is a great deal of luck in the production of a good aeroplane.

(The Witness withdrew.)

Now, Sir John, the next witness is the one who deals with the chemical matter. As I have told you, he is not a manufacturing or industrial chemist; although he has deliberated with those who have drafted this statement of evidence, he does not

Mr. JOHN DESMOND BERNAL, M.A., called and examined.

1110. *Mr. Bernal*: My name is John Desmond Bernal and I have been for seven years a lecturer in crystallography in Cambridge University, and last year I was appointed Assistant Director of Research. My work in crystallography brings me very much in contact with problems covering the whole range of the chemical industry. That is to say, we have to examine industrial products and we have to consider processes and things of that sort. I cannot, on the other hand, claim to have direct practical experience in those fields.

In considering the nature of the chemical side of armaments, the main fact to bear in mind is that, unlike heavy armaments and unlike aeroplanes up to a point, chemical armaments are used up only in war time and, consequently,

1108. *Professor Gutteridge*: There was a little bit of trouble at the time. The Fokker aeroplane was getting the better of the BE 2.

Mr. McKinnon Wood: Yes.

1109. *Sir William Jovitt*: There is just this, before I leave aeroplanes: I am reading from the Report of the Committee of Public Accounts, which I see is very up-to-date, it was ordered by the House of Commons to be printed on 4th July, 1935, and it deals with this question. Under the heading "Air Services" it says this:—

"Non-competitive Contracts. The Public Accounts Committee of 1934, in Paragraph 21 of their Second Report, reviewed the subject of non-competitive contracts for aeroplanes and engines, which had been previously considered by the Public Accounts Committee in 1925 (Paragraph 46 of their Second Report of that year). The Committee of last year found that the conditions disclosed at the Inquiry of 1925 still prevailed, and that no substantial extension of the field of open competition had been secured since that date. While regretting that further progress in that direction had not been found possible, they felt that in the meantime they could only rely upon the Air Ministry to continue to use their costing and other data to the fullest extent to secure from manufacturers fair and reasonable prices and to seek further powers if at any time the position appeared to be unsatisfactory. They suggested, however, that the position should be reviewed by the Public Accounts Committee after, say, five years, or in the event of any material alteration of the conditions such as might be caused by a considerable expansion of the Air Force. In view of the fact that such an expansion has now been decided upon, your Committee have given further attention to the subject, and they have ascertained that, while the underlying conditions have not improved in any way, the percentage of contracts placed on the basis of competitive prices, though not actually by competitive tendering, will be substantially higher this year. Your committee were informed, however, that the need for rapid production at maximum capacity must to a very large extent preclude competitive tendering and make it necessary to confine orders to some 14 or 15 firms who have long experience of the particular type of work required. On the other hand, the hope was expressed that, with orders on an increased scale, lower prices might be expected."

That you will find is all dealt with in the Report from the Committee of Public Accounts and you might like to have the reference to that, Sir John.

pretend to have any internal knowledge of the organisations dealt with. Mr. Bernal is Assistant Director of Research in Crystallography and Stereochemistry at Cambridge University.

the problem there is not the problem of the preparation of large stocks of weapons, but the possibility of rapid expansion in the case of war. That, of course, is also affected by the problem of the export of explosives and poison gas, which will go on as long as there are any wars in any part of the world. Therefore, the question in relation to plant is largely a question of the possibility of rapid expansion rather than existing plant. All the evidence goes to show that there is very little specialisation in chemical manufacture, that is to say, almost any plant can produce, in a relatively short time, almost any chemical needed, explosive or otherwise, given the raw materials. That is starting from the very beginning. The government T.N.T. factory during the War was producing its

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first ton of T.N.T. three months after the first sod had been cut for the building of the factory. And so the problem is very different from that of the other aspects of armaments.

The chemical armaments can be divided into two quite distinct groups, the explosives and the gases, but although they are distinct in their uses, they depend, to a large extent, on the same raw materials. I would like to stress very strongly the importance of raw materials for the war chemical industry. The main raw materials for both explosives and gases are very common substances; they come down to coal, particularly in the form of coal tar from the gas industry, lime, salt, sulphur and arsenic. All those, with the exception of sulphur, are produced in ample quantities in this country. The supplies of sulphur will probably be ample owing to the new processes which have been developed for extracting it. Given that condition, it is very much more difficult to localise the chemical industry than it is to localise other industries.

The explosives industry uses as its prime raw materials coal, sulphur and nitrates, and the nitrates themselves are strictly intermediate: they may come either from Chili saltpetre and are therefore imported, or they may be made from the atmosphere. In this connection one can see the very close relation between the war and peace time state of the chemical industry. In peace time nitric acid is used practically exclusively in the production of fertilisers. The same plant can immediately—this is not a matter of months but of weeks—turn over from fertilisers to high explosives. Therefore, its productivity in war depends on the state of the industry in peace. At the same time, there is a continuous and very large production of explosives in peace time and, of that, during the last year for which the figures are available, 50 per cent. was exported. I do not think I need go into the detailed processes, which are all given in the pages of the statement of evidence dealing with explosives. It can be seen from that that there is no particular difficulty in making explosives but that at present the explosives manufacture is practically confined to the I.C.I. group of factories, particularly to the Ardeer factory, which the I.C.I. acquired when they amalgamated with Nobels. For that reason, there is no technical difficulty at all in separating the manufacture of explosives from the rest of the chemical industry. Explosives manufacture is something which can be, in peace time, taken over completely by the government. Already the government makes, through its own arsenals, a considerable amount of explosives of exactly the same type as are made by the I.C.I. factories. It is true that the I.C.I. factories also make certain other explosives for industrial purposes—mining purposes particularly. Whether those will come under the same schedule of control is a further point to which I will return later.

The problem of gas, however, is a very much more limited one. In the first place we may say that there is no large production of poison gas—at any rate next to none—going on in the country at the present time. But the production of poison gas is, of course, something which can be undertaken with extreme rapidity, on account of the great simplicity of methods of manufacture and the common nature of the materials required. I would simply quote one example, that of Lewisite, which is an improved poison gas from the point of view of physiological damage, because it combines the blistering powers of the ordinary mustard gas with the arsenic which it contains, producing arsenical poisoning in the victims. Lewisite is produced by the simple method of bubbling acetylene through a mixture of arsenious chloride and aluminium chloride, the latter being a catalyst. That is a very simple operation which could be done in any chemical works and could be put into operation at almost any time. That is a case of the most high toxicity. The figures are given here: one-twentieth of a milligram in a litre—that is roughly 1/100th the concentration of the material

in a London fog—will produce death from exposure to it within a few minutes. This can be produced in enormous quantities, the materials there being essentially salt and arsenic. But the chief difficulty about the question of control is that there is no way of separating the normal process of chemical manufacture from those which will be needed to produce poison gas. We have, of course, the official assurance on the subject of poison gas, which might seem to rule the question out of court altogether. It says in the War Office Technical Notes on Defence against Gas "The use of gas was prohibited by the Geneva Gas Protocol of 1925, to which most, but not all, of the principal Powers of the world have subscribed. The British Army must, however, be prepared to defend itself against the use of gas by any Power with which it may be at war. On the outbreak of war, the British Government will endeavour, in conjunction with its allies, to obtain from the enemy Government, or Governments, an engagement that poison gas shall not be used as a weapon of war, if any of the Governments concerned have not ratified the Geneva Gas Protocol." I may say that substantially this form of words is also to be found in the French Manual, and, I believe, in every official manual on military defence throughout the world. It implies that, in fact, there is going to be an attempt to use poison gas, and, although it is not made in large quantities—that is very natural, because it does not keep very well—it is being continually experimented on. In the House of Commons last year it was stated that roughly 3,000 animals were killed in the course of ten years in experiments with poison gas and, of course, the experiments were still continuing. I make this point to show that we must, from the point of view of actual war potentialities, consider poison gas as probably more important than explosives, and therefore that any scheme for the control of armaments must take into account the control of the production of poison gas.

Of the materials used for the production of poison gas the chief substance is chlorine. Chlorine, I think, enters into nearly every existing poison gas—probably not the latest types, but the standard types of gas, and those likely to be used in the greatest abundance. Chlorine is practically exclusively made, in this country and, I think, in other countries, by a process by which electric current is passed through common salt, which separates it into chlorine, on the one hand, and into caustic alkali, on the other. This process—the Castner-Kellner process—is one of the most important means of producing, not so much chlorine gas, but the caustic soda which is used in many industrial processes. The chief chemical economic difficulty which arises out of this is that it is extremely difficult to find sufficient sale for the chlorine produced. At present something like two-thirds of the caustic alkali that is produced in this country is produced not by the Castner-Kellner process, but from ordinary alkali just by the mixture of lime and soda in the soda works of the I.C.I. (The Castner-Kellner process is also controlled by the I.C.I.) It is simply a matter of switching over from the less expensive Castner-Kellner to the more expensive soda process, according to the demand for chlorine.

The point that I make here is that any avenue for the use of chlorine would be extraordinarily valuable to the firms concerned, because it would enable them to save on the process, and they have been exploring, very naturally, all avenues for the use of chlorine. Unfortunately for them, some of the uses of chlorine have been discarded. Chlorine was formerly used in the artificial-silk industry. It is now no longer used. Therefore there is a further impetus to find a use for chlorine. It is unlikely at the moment, in peace time, that any abnormally large stocks of chlorine would be required for poison-gas purposes. But there is another purpose for which chlorine could be used, also in connection with poison gas, and that is, as a decontaminant for poison gas which has been used on a piece of ground and which is effective for poisoning people on that ground for a considerable time. The

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most valuable agent for removing it is bleaching powder, which is made out of chlorine and lime. The point to be remembered is that the amount of chlorine required in bleaching is something like ten to twenty times the amount of gas that it will decontaminate; and so if a decontaminant is to be used on a large scale it would provide itself far greater need for chlorine than would be demanded for the poison gas. It does not seem very likely that that will be done. Mr. Davidson Pratt, secretary of the United Chemical Manufacturers' Association, stated in public that he considered that decontamination would need to be done largely with water and earth—not very effective chemicals for the purpose—because it was not unlikely that there would be an inadequate supply of bleaching powder. That reflects the competition for chlorine as between the necessity in war-time for the production of poison gas and the necessity for decontamination of areas which have been affected by it. If decontamination was required it is quite clear that if all the Castner-Kellner process was worked at a high pressure it would still be difficult to provide enough chlorine for both those purposes, though it would be very easy to provide enough chlorine for offensive purposes.

The position as regards the other constituents is also fairly simple. The sulphur constituent and the arsenic constituent can be found. I should like to lay particular emphasis on the arsenic constituent. Arsenic does not enter into many ordinary chemical processes. It is very much apart in the use to which it has been put for its definitely poisonous properties—that is, for weed killer, insect killer, and so forth—but there is a close connection between the arsenic destructive gases like Lewisite, the more poisonous kind, and the preparations which are made for the purpose of dealing with insect pests, and so forth. So there would be no difficulty in including arsenical compounds in any offensive poison-gas.

The position then is this. That there is no difficulty under any schemes in providing for the proposed ownership or control of poison gas manufacture. The question of the desirability is another matter. We have here a case where it is quite clearly of special advantage to the firms concerned that both chlorine for poison gases and chlorine for decontamination should be fully used; and therefore a state of war or danger of war has a definite money-value to the firms concerned. In the case of decontamination that appears in a more innocent form. In the government circular on defence against gas, which was issued about three days ago, local authorities are instructed, or advised, to lay in stocks of bleaching powder. Now it is quite clear that if stocks of bleaching powder of anything like the adequate amount were to be laid in, it would completely change the whole position relative to the production of chlorine. In fact, if large stocks had to be laid in for a year or two it would probably mean that the price of chlorine had to be doubled as a result of that demand. Presumably that will not occur; possibly, as in France, the amount of bleaching powder laid in will be nominal. Nevertheless it is in the interest of the bleaching-powder firms to see that adequate defensive measures against gas are taken. A certain amount of publicity of this sort has been undertaken by associations which are connected with such firms, and we have now a possibility of such recommendations being actually put into practice. So much for the situation with respect to gas.

There are two other war materials which come into the chemical category, but less directly. One is synthetic petrol from coal, which is produced by I.C.I. by an hydrogenation process. That this is definitely of military value is virtually admitted by the enormous subsidy paid to I.C.I. by the government by exempting such petrol from duty. This action in itself provides an additional argument for the general thesis that the whole of the chemical industry is of so much value to the government in time of war that it must be either nationalised or put under control.

The second raw material which is connected, less directly but very singularly, with the chemical industry is nickel. The connection of nickel with the

chemical industry is not accidental. It might appear to be, insofar as at the commencement of the chemical industry it was the Brunner Mond Company that began with a process in which nickel was used. Incidentally the process of hydrogenation is evolved partly by the nickel catalyst. That led the company to acquire control, through the International Nickel Company, of practically 80 per cent. of the world supply of nickel, and that nickel, as has been pointed out, is absolutely necessary for heavy armament steel. But the actual metallurgical process by which nickel is extracted is totally different from that of other metals in that it is carried out by a chemical process which turns the nickel into a gaseous compound. Consequently the extraction of nickel technically as well as economically forms part of the chemical industry. There is no question that the main use of nickel is for war purposes. The difficulty of control lies in the fact that the actual supplies of nickel are not located in England but they are located in the British Empire—in Canada. So much for the actual materials and process.

The recommendations of the Union are graduated. It is quite clear that the only real solution in connection with the chemical industry is complete socialisation, complete nationalisation of the industry. That is our recommendation based on the impossibility of considering any part of the chemical industry as potentially separated from war purposes. There is no chemical factory that cannot be used for the production somehow or other of war products, be it gases or explosives, and there is a connection between the raw materials needed for war purposes and those which are needed for the ordinary chemical industry. The difficulty of separation would be very great. There is no doubt that if this general question of nationalisation were considered it would be technically quite possible, because the organisation of the industry differs very much from the organisation of the other industries in that it is virtually completely under the control of Imperial Chemical Industries. As you can see from the charts which are appended to the evidence, particularly Figure 2A, which gives the structure of Imperial Chemical Industries, there is no section of the chemical industry that is not represented by one or other of Imperial Chemical Industries' subsidiaries. The structure is very different from the heavy armament section and the Vickers group. It is not a question of interlocking directorates so much as a complete and very efficiently administered trust. In the next chart can be seen the foreign connections, which I only mention because they constitute one of the strongest arguments for the nationalisation of the industry as a whole. Insofar as the foreign connections are concerned you can see they include connections with chemical firms and subsidiaries in every country in the world which is of importance industrially. That means that Imperial Chemical Industries can and do make agreements with other countries, particularly with combines like Du Pont de Nemours, which, considering the material value of the products involved, are as powerful in affecting policy as a treaty between governments, and such important transactions should not in our opinion lie in the hands of an individual company. But that very concentration of organisation in the country would make relatively easy its complete nationalisation.

Failing nationalisation we suggest that at least effective inspection and control and license should be applied, and the methods of applying that control are set out in the fifth and sixth pages of Part VIII*—particularly the sixth page. The actual proposals are on the right-hand side, "That all explosives (excepting black gunpowder), whether for industrial or military purposes, be manufactured by the state from the raw materials and intermediates supplied by the private chemical manufacturers." That is in effect an extension of the present government factories to cover all explosives, and is tech-

* Appendix, pp. 210-211.

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[Continued.]

nically quite feasible on account of the present concentration of the explosive business belonging to the I.C.I. group. There would be no technical difficulty and the amount of money involved would not be large. The figures are given on the same page in the left-hand column. Approximately £20 million is the capitalised value. Then "(b) That licences for export of all raw or semi-finished materials likely to be used in the manufacture of explosives or poison gases be issued by the state." That of course, does involve technical points of considerable complexity.

The actual schedules of commodities are given below. They actually consist of two groups. The first group are the main basic raw materials, nitric acid and sulphuric acid, refined glycerine, alcohol, toluene, ammonia or ammonium compounds, picric acid and acetone. All those are substances which are used to a considerable extent in industry. They are also used in the manufacture of explosives particularly. It is difficult to say how much is used for explosives on account of the method of publication of the figures, but at any rate there are large quantities of sulphuric acid—about 20 to 25 per cent. of the whole production—used for nitration purposes; whether entirely for explosives nitration or for purposes connected with celluloid it is absolutely impossible to check from the figures. It is essential that those raw materials should come under licence, because anyone possessing them could with relatively simple plant make all the products they wanted.

The second group are more particularly associated with the manufacture of poison gas. I will not read out the list, it is highly technical; half of the substances are fairly common like acetone or picric acid, others like phenylarsenic acid are only of use for poison gas.

Finally we come to the lethal gases themselves which, of course, cannot be specified by name because the great majority are secret. They can only be specified by their lethal capacity. Phosgene which is a relatively dangerous gas is taken as the modern standard of lethal gas. Originally it was considered pretty lethal, but it is nothing now compared with the newer gases.

Now I come to the third recommendation, "That the private manufacture of certain poison gases be prohibited. The reagents in question are given in the schedule of commodities." Those recommendations are themselves quite practicable, but, of course, they are open to very considerable possibilities of evasion. It is going to be extremely difficult to check the working out of these intermediaries in factories connected with the parent factories, in fact, it will be quite impossible—as you can see from Figure 2B—because if this is applied in this country there is nothing to prevent any of the I.C.I. joint companies from carrying out the finishing process, without breach of any agreement.

Secondly, although that is feasible, it would obviously be much better to have complete control of the industry as suggested on the next page of Part VIII, in the left-hand column:—"The type of control which seems to us to be essential would consist of boards on which were represented the government officials, both technical, administrative and financial, representatives of the technical, managerial and office (accountancy) staffs, and also representatives of the workers elected democratically by secret ballot in the factories."

That last remark is very important because the chemical industry, particularly under war conditions, is one of the most dangerous of industries. Only a few days ago we read of the explosion at the Rheindorf works in Germany. We have not the figures, but between 1,000 and 2,000 people must have been killed. I think in 1927-28 the Leuna works blew up and a thousand people were killed. All these things are to a large extent due to a lack of regard for working conditions which can only be checked by representatives of the people working in the industry. I will read the end of the recommendations. "These boards would in all cases be of four main classes, Co-ordination (for different products for various factories, e.g., intermediates), National, Regional and Factory. All the management of the nationalised

industries to be subject to Parliament so that debate could occur and questions be asked with regard to its position and management."

1111. *Chairman*: May I ask one or two questions, because I do not quite follow part of this? On the sixth page of Part VIII there is a passage, "In the case of explosives, the varieties are so great, and the difference between pacific and military use (except as propellants) so ill-defined, that it is impracticable to separate them." Do you agree with that?

Mr. Bernal: Yes, I agree with that.

1112. *Chairman*: Then near the top of the next column do you see "It is proposed (a) That all explosives (excepting black gunpowder) whether for industrial or military purposes be manufactured by the state from the raw materials and intermediates supplied by the private chemical manufacturers"? The result of that would be, would it not, that all explosives whether for industrial or military purposes would be manufactured by the state?

Mr. Bernal: Yes; that is so.

1113. *Chairman*: And the state would then be a trader in respect of explosives for industrial purposes. You could only acquire them from the state?

Mr. Bernal: Yes, that is perfectly true.

1114. *Mr. Spender*: You stated, as I understood, that another war would have a money value to the I.C.I. Would it not be true to say that a second war, taking the whole industry, civil and military together, would inflict a very considerable dead loss upon their trade?

Mr. Bernal: My answer to that would be that it would be best to examine the condition of the constituent firms of the I.C.I. before and after the late War. On their own reports the War was a period of great activity and they certainly did not emerge from the War in a position of financial weakness.

Mr. Spender: I am only suggesting that the considerable amount of industrial work that is now dependent on the activities of I.C.I. would lead to the conclusion that the loss caused by a second war to such a penetrating industry would probably be disastrous.

1115. *Sir Philip Gibbs*: Is it a fact that these materials are so common that most industrial nations would now be able to manufacture this poison gas and explosives?

Mr. Bernal: That is so.

1116. *Sir Philip Gibbs*: Are there many nations who are unable to do so? Apart from the primitive nations is there any civilised country in Europe which is unable to provide these explosives themselves?

Mr. Bernal: Many of them do not do so. The chief countries that do are ourselves, Germany, France and, to a certain extent, Czechoslovakia and Italy. Other countries have their government factories of course. We could get out a list of the countries if you would like it to-morrow?

1117. *Sir Philip Gibbs*: Thank you very much. I would like to ask one other question and that is this: Do you think from your own knowledge that there is much export of materials for poison gas or for explosives to these other industrial countries?

Mr. Bernal: We can get figures for you.

1118. *Sir Philip Gibbs*: Thank you very much.

Sir William Jovitt: The explosives figure will be wrapped up in the other figure. Military cartridges obviously contain a certain amount of explosive, but I think we can get you the figures of explosives as such.

1119. *Sir Philip Gibbs*: I would like to ask this witness whether he thinks there is any export of poison gas. Is it possible to export poison gas in its finished state?

Mr. Bernal: Chlorine can be called poison gas or not; it is the same whether it is used as poison gas or not; that is exported, but as far as we know no other poison gases are being exported.

1120. *Professor Gutteridge*: I suppose that applies to gas shells as well, does it?

Sir William Jovitt: I will try to get those figures to-morrow if I can.

Chairman: That is all we wish to ask this gentleman.

(Adjourned till to-morrow at 11 a.m.)

EIGHTH DAY

Thursday, 18th July, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).Mr. D. HAIGH (*Assistant Secretary*).

The Rt. Hon. Sir WILLIAM JOWITT, P.C., K.C., appeared on behalf of the Union of Democratic Control.

Mr. RONALD MCKINNON WOOD, O.B.E., M.A., F.R.Ae.S., recalled.

1121. *Professor Gutteridge*: The Bailhache Committee, if I may call it so, was appointed to inquire into the Flying Corps generally, was it not?

Mr. McKinnon Wood: Yes.

1122. *Professor Gutteridge*: But incidentally I believe they also inquired into the working of the Royal Aircraft factories.

Mr. McKinnon Wood: Yes.

1123. *Professor Gutteridge*: I have not been able, although I have been trying to, to get hold of a copy of the report, but perhaps you can help me with regard to this. I think in certain respects they reported adversely to the Royal Aircraft factory, did they not?

Mr. McKinnon Wood: They made certain criticisms. They mentioned the point that I mentioned yesterday, that in designing experimental aeroplanes there are bound to be a number of failures, but they commented on the number of very successful aeroplanes that had been produced, and they commented adversely on the fact of some of the subordinate officials at the factory which they thought might irritate the people in the industry. There was one case in which a subordinate official at the factory had started measuring up one of the products of the industry, and his action had been promptly repudiated by a higher authority. Then the report said there would always be certain complaints as long as the aircraft factory and the Flying Corps were under a common head, and recommended a separation.

1124. *Professor Gutteridge*: Did not they recommend, if I remember rightly, that the aircraft factory should confine itself to the experimental work? Was not that one of their recommendations?

Mr. McKinnon Wood: The findings were that the factory should continue, but it should be confined, I think they said, very much as at present to trial and experimental research, the preparation of drawings, repairs and the manufacture of spares—it is not very clear to me whether trial and experiment and the preparation of drawings does or does not include the designing of aeroplanes in competition with the trade—but certainly it should not undertake manufacture on a big scale.

1125. *Professor Gutteridge*: May I interpolate this? I was wondering what you yourself contemplated. Have you contemplated a manufacturing body, or merely an experimental national factory?

Mr. McKinnon Wood: I should prefer that the whole of the design and manufacture and experiment was conducted in a state organisation.

1126. *Professor Gutteridge*: All concentrated in the hands of the state?

Mr. McKinnon Wood: Yes.

1127. *Professor Gutteridge*: You do not think that if that was done there would be a certain danger of over-run standardisation, do you?

Mr. McKinnon Wood: I think it would be necessary to do it in a form of providing for competition between staffs.

1128. *Professor Gutteridge*: Would you mind explaining that a little more in detail, because I am not quite sure that I understand that?

Mr. McKinnon Wood: At present particular competitions are between four or five contractors, but in the same way, a specification of the requirements of the Air Force would be issued to, I think not quite so many, but to a number of different state factories, and the drawing office staffs would then compete in designing the machines required by the Air Force.

1129. *Professor Gutteridge*: If I understand you correctly, any such competition as there is between individual firms you would prefer to have between individual government factories. Is that part of your plan?

Mr. McKinnon Wood: Yes.

Sir William Jowitt: There was another Committee, was there not, the Burbidge Committee?

1130. *Professor Gutteridge*: Yes, there was the Burbidge Committee, and unfortunately I have not so far been able to get a copy of their report; and I think there was a third one, too.

Sir William Jowitt: I do not know of the third one.

1131. *Professor Gutteridge*: I do not know how far it is important, but what is in my mind is this. I have always understood that the Royal Aircraft factory concentrated on the production of the Napier engines, which proved to be a failure. The Napier firm undertook to build the engine to the specification of the Royal Aircraft factory, but the Rolls Royce factory declined to have anything to do with it, and produced an engine on their own lines. I have always been given to understand that the production and development of aeroplanes during the War would have been very much more rapid if the Royal Aircraft factory had not insisted on its own designs. That was my point. I do not know whether you can throw any light on that, can you?

Mr. McKinnon Wood: I think the facts were that the aircraft factory had got out drawings up to a certain point for engines above the size that they had actually produced, and that these drawings were given to Rolls Royce and to Napier, the idea being that the particular aeroplane engines that were wanted would best be produced by those firms and that the factory drawings would give them a start-off; but the drawings were actually rejected by Rolls Royce, but accepted by Napier, as the appropriate type of engine. I think they were different drawings, for the two firms, of two different engines.

1132. *Professor Gutteridge*: As a matter of fact, I think the S.E.5 was the only really successful plane that the Royal Aircraft factory produced?

Mr. McKinnon Wood: Well, the Bailhache Committee said that the B.E.2 aeroplanes showed a great advance in aeronautics.

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[Continued.]

1133. *Professor Gutteridge*: That was a Bleriot.

Mr. McKinnon Wood: "B" came from "Bleriot". It was only a compliment to Bleriot, as he was one of the first people to put the propeller in front of the aeroplane, and this aeroplane followed that design. That was the only connection, really, between the two. The "F.E.", which meant "Farman Experimental," was so called because the propeller was behind, and that again was the only

connection with Farman, and that was a good aeroplane. The Committee also said that the B.E.7 served its purpose, and that the B.E.2.C. was strong, and aeronautically sound.

1134. *Professor Gutteridge*: That was successful?

Mr. McKinnon Wood: That was a highly successful aeroplane.

Professor Gutteridge: Thank you for helping me with regard to that.

(The Witness withdrew.)

1135. *Sir William Jowitt*: Then, Sir John, I have Lord Marley here. He would like to answer any questions that the Commission might desire to ask regarding the general aspect of the whole case.

Chairman: There were some questions that some members would like to ask you, not technical

questions, but questions bearing upon the exact proposals made in this statement.

1136. *Sir William Jowitt*: I think Lord Marley will answer those, Sir John.

Chairman: Very well.

LORD MARLEY, D.S.C., J.P., D.L., called and examined.

1137. *Chairman*: Did you wish to make any statement, or merely to deal with any questions that you are asked?

Lord Marley: Perhaps, Sir John, I might say this about the whole position. The statement of evidence that the Union of Democratic Control has submitted to the Royal Commission—and I speak as a member of the Committee of that organisation—has been prepared with the greatest possible care that we could apply to it, and we are entirely satisfied with the line of approach conducted by Sir William Jowitt in putting it before the Royal Commission, and with the evidence of our two witnesses.

Perhaps I might amplify one statement which Sir William Jowitt made, in pointing out that we are not a political organisation in the sense that we are affiliated to any political body. We are an entirely free organisation, not affiliated to any political organisation at all, and the line of approach that we have taken to this problem, we believe, is a line which is in the national interest, is in the interest of the nation as a whole. We believe there is nothing in our evidence or conclusions which might not have the support of persons of any political faith or of any political party. I wanted to make that little amplification in the light of the suggestion that we are a Socialist organisation.

Of course, I might go one step further and say that a Socialist is a person who believes in common sense, and I would no doubt have the limited support of the members of the Royal Commission in that. It is a question of definition. But, broadly speaking, we are concerned with the national interest in this matter, and we leave the definition of national interest to the individual Commissioners on the facts which we have put forward.

I might say, however, that we do believe in greater publicity for the whole of this business of private manufacture and export of armaments, because we believe that that is a method which may help towards the prevention of corruption. Then we do believe in control of the whole industry, because we believe that that is a method which may help to combat the proved inefficiency of private manufacture. We believe, and we hope we have proved, that it is inefficient in very many respects, and we believe that control would help to prevent that inefficiency; and, finally, we do believe in national ownership, and we support national ownership, because we think that is a method of avoiding the tendency towards encouraging militarism, the use of militarism as a tendency towards the encouragement of ill-faith, over-emphasis of disputes and misunderstandings between countries, which is a temptation which must be felt by those who make a living by profits from the sale of armaments.

There was a question, I understood, put with regard to the profits of chemical industries during yesterday's proceedings, and I merely want to say that we do not for a moment suggest that the chemical industries would in any way encourage war

merely to make profits. But it is a fact that during a war, chemical industries do make very large profits, and while not saying a word about the encouragement of war, I do say that it would be in the national interest that those profits should be available for the nation as a whole instead of for private shareholders, because if those profits were available for the nation as a whole, it would result in more armaments at a cheaper cost rather than fewer armaments at a heavier cost. Again, if we are concerned with efficiency at all in this matter, that seems to me to be self-evident. This matter was brought out in evidence before the American Committee, and it was reported in *The Times* in September of last year, when an investigation was made into the capital of the Du Pont Company in the four war years. The figures are quoted in *The Times*. We are told by Mr. Du Pont that the Delaware Company had earned in the war years 1,245,000 dollars, and at the end of 1918 their books showed a surplus of 60,000,000 dollars ascribable to war profits, though those took no account of bonuses paid during the war years. Senator Bone pointed out that according to the company's annual report for 1918 that represented 458 per cent. on the total volume of business—458 per cent. profit on the total volume of business. Any profit in the neighbourhood of 400 per cent. or more seems to us to be somewhat excessive, and we cannot help thinking it would be to the advantage of the country were those profits available for the mitigation of taxation or—and I speak here as a soldier who suffered severely during the War from the inadequate supply of ammunition in the early stages—for the advantage of those who unfortunately have to conduct the fight. I remember, if you will pardon a personal reminiscence, Sir John, very well when we had to use American ammunition during the early stages of the War for our artillery, and in my own unit we always took care to be as far away as possible from our own artillery on those occasions, because unfortunately those shells had a habit of bursting at the muzzle instead of where they were supposed to burst, and inflicting suffering on our own people rather than on those for whom they were supposed to be destined—another disadvantage, if I may say so, of the private manufacture of arms.

I do not think I have anything to add, Sir John, but if there are any questions, I would do my very best to answer them.

1138. *Chairman*: Yes. Would you mind my asking you a few questions, in order that I may realise exactly what it is that your proposals amount to. First of all, the suggestion is that in order to deal with this question effectively, and the question of the armaments industry generally, it is essential to consider the three separate heads of heavy armaments, chemistry, and aircraft. Well now, is the conclusion that one is to draw from your case that it is possible to deal with each of those classes separately, in this sense, that it might be advisable to nationalise one head, we will say heavy armaments; partly nationalise another head, we will say aircraft;

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and control chemistry—that you may adopt two systems, either nationalisation of one or control of the other, and so forth, or deal with them all by one system?

Lord Marley: The point is this, Sir John. First of all, we do not venture to suggest to the Royal Commission what conclusions they should draw. We try to place before you evidence from which we believe you can only draw one conclusion; but that is entirely for the Royal Commission, and naturally we do not suggest that; but the line we take is this, that there are two extremes in this business. On the one hand, there is complete national ownership and control—nationalisation. On the other hand there is private ownership and control. Between those two there are an infinity of variations of marginal points. Now, if we take these three separate points which you have enumerated, we do not say that each of those will come in the same place between those limits. We believe, for instance, that the production of purely war material, such as armour plate, can be and should be completely nationalised. We believe that there are other aspects which may not go nearly so far in that direction.

1139. *Chairman:* That is what I gathered from the statement. I mention that because we have had evidence here from one witness who has had considerable experience, Dr. Addison, that in his view, whatever is done there should be only one producing and administrative authority. I wondered, in view of what you have now indicated, what you wish to say as to that?

Lord Marley: I should say—and here I am speaking personally—that while you might have one controlling body, there is no reason why that controlling body should not deal with each of these aspects of arms production in its own way. In so far as one is completely nationalised, there could be complete departmental control; in so far as another is only partially publicly controlled, there would be only a partial control. I think the three could be co-ordinated under one Munitions Ministry. That is only a personal idea in amplification of what Dr. Addison said.

1140. *Chairman:* To deal with these separate heads one by one, if I may, take first of all the heavy armaments. On the third page of Part IV of the Statement of Evidence*, a few lines down on the right-hand column, the author is dealing with the question of what I may call armament steels as opposed to commercial steels. He says: "The point is that, although melted in the same furnace as commercial steels, armament steels are earmarked from the start and only a small proportion is sidetracked"—by that he means used for some other purpose?

Lord Marley: Yes.

1141. *Chairman:* Then he goes on: "But it should be borne in mind that an increasing number of commercial purposes are being found for these alloy steels"—and by that I understand he means what we call armament steel—"formerly used for armaments only." Now, what I wanted to ask on that is this: whether or not there is any substantial amount of this armament steel which is not used for purely armament purposes?

Lord Marley: Well, it is not a matter on which I have expert knowledge, I am afraid, but of course it is quite clear that the most recent of the types of armour plate are composed of the latest alloy steels which presumably would not be largely used for commercial purposes.

1142. *Chairman:* Yes, but I wanted to know from a practical point of view whether this armament steel has not been substantially used for purposes other than armament purposes, and that that use is increasing?

Lord Marley: I think we are dealing with it in a slightly different way, if I may say so. You have got your steel production at the beginning—

1143. *Chairman:* You do not follow my point, I think. What I am driving at is this: whether or not your proposition which you come to in later pages, that you would nationalise the production of armament steel, does not involve the nation becoming traders in that steel if it is used for other purposes?

Lord Marley: Not necessarily.

1144. *Chairman:* Well, if nobody else can make it, who are they to get the steel from?

Lord Marley: There is no reason why a national factory should not supply the small quantities of particular steel alloys which may be required.

1145. *Chairman:* Then they are traders to that extent?

Lord Marley: Oh, well, yes.

1146. *Chairman:* That is all I wanted to know; and I wanted to know, as far as anybody can tell me, what proportion of armament steel is being used for purposes other than pure armament purposes?

Lord Marley: Now I do not know the proportions, Sir John, but I am pretty certain that as private enterprise develops it will be an increasing proportion, because when you get your special steel produced, specially hard steel for specific purposes, you will have an increasing proportion being called for by private enterprise.

Sir William Jovitt: May I suggest this, that I might get the Union to write a letter to your Secretary dealing with this point. That might form the groundwork for your investigations hereafter.

1147. *Chairman:* Very well. Then will you turn to the first page of Part VIII of the Statement of Evidence.† On the right-hand column you see you come to deal with this again, and in the second paragraph it says: "The differences between the production of steel for armaments and that for commercial products start from the time the raw metal is placed in the furnace." That is exactly the same point as in the earlier page. "This definite distinction between arms and civil production is a factor of enormous importance in the consideration of the practicability of the institution of a state monopoly in the heavy arms industry." Then you go on to refer to the principle of separation in the memorandum presented to the Disarmament Conference by the French, Spanish, Polish and Danish Governments, and their object is stated later: "The sole object is to reserve to the state that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes." Now, is it a fair conclusion from all your statements that those who are responsible for this case do not accept that as a practical proposition—their proposals are something entirely and essentially different?

Lord Marley: No, I would not say that.

1148. *Chairman:* Are they not, if you consider them? In no part of this case are you attempting to deal with the question as to whether it is practicable to assume control over an article at its first transformation from a pacific into a warlike article.

Lord Marley: The answer to that is that we place before you this evidence, in which we suggest that it is possible to publicly control from the very moment when the raw material becomes first destined for a warlike purpose. But when that moment is, we cannot say, in view, on the one hand, of our lack, naturally, of complete knowledge—we have not got the powers of investigation which the Royal Commission have—and, on the other hand, by reason of the changing nature of steel production, which may gradually push further one way or the other at any moment. Well, now, in order to clear up that point it is quite certain that we must choose an arbitrary point. If we are in favour of national control or ownership at all, we must choose an arbitrary point, and that point may subsequently vary in the general development of production in private industry, but there is no reason why state ownership should vary. If, for instance, the state has a monopoly of the production of a certain alloy steel, there is no reason

* Appendix, p. 173.

† Appendix, p. 206.

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why it should not, if it is necessary, even become a trader in that particular alloy steel if for commercial purposes it becomes demanded; but our point is that we are not concerned with the commercial side, we are concerned with the infinite desirability and the practicability of the state becoming the owner of warlike production in this country.

1149. *Chairman*: Yes, but what I wanted to test was your view, or your organisation's view, of the practicability of this proposal which has been put forward, which suggests that the moment of control, when control should commence to operate, is the moment when the article ceases to be of civil use merely, and becomes useful for warlike purposes. Now, take your statement. You see, with regard to heavy armaments, you commence at the commencement. There is no question of an intermediate stage. You commence at the commencement and you point out and emphasise that armament steel is never, practically, a civil article—if I may use that word—and the same equally with chemicals and with aircraft. You do not attempt at any stage to say: "Now, at this stage in the manufacture, it ceases to be one and becomes the other." Throughout this statement, you start from the commencement under each head. Is that right?

Lord Marley: No, Sir John, my point is this. Let me put it to you in this way. There is only one man in this country who can say at what precise point national ownership and control of armament production, or of production which can be used for military purposes, should start, and that person is Sir John Eldon Bankes and the Royal Commission over which he presides; because your Commission alone have the power to investigate every one of these problems, and to say where, if you decide that public ownership and control is necessary, it should start in each case.

1150. *Chairman*: If it is true that I am the person, which I do not accept for a moment—

Lord Marley: I am sorry, but I am afraid you must.

1151. *Chairman*:—I want to be advised, and I want to know what your advice is, whether I had better consider this question of starting control at a particular point in the manufacture, or whether I had better accept what I understand is entirely a different suggestion, namely, that it is not necessary to consider that at all, it is not desirable to consider it at all, but in each phase you ought to start at the very commencement.

Lord Marley: Let us take these points. I see in our case that the points of starting will be very different. If we take the production of guns, of artillery, it is quite clear that the state is already a manufacturer of these articles and we believe should be the sole manufacturer of these articles. We know that there are many countries in the world where the vastly greater proportion of production of these materials is already state-owned. I am told, for instance, that in France something like 80 per cent. of production is state-owned, whereas in this country, in rough figures, it is only 20 per cent. We believe that it would be in the national interest that the whole of that should be state-owned and controlled. Now then, when we come to the chemicals trade, it is a different proposition, because it is quite clear that certain chemical products—and I speak as a non-expert in this—can at one time be used for pacific purposes and with a very slight variation can be adapted for war purposes. Now, exactly where the control comes in it is extremely difficult to say, and that is why I say that if you decide that control is necessary, you can in your recommendations give the point. If you want my advice for what it is worth, and I do not pretend it is worth a very great deal, Sir John, because I have not your experience or access to documents, I should say the sooner the better; because the sooner you start the cutting-out of inefficiency, of private tinkering and of corruption—and that will

always be the line we shall take—the sooner we start national control, the better we shall be pleased. But I would, of course, like control to start sooner than later, in the national interest. For purely Conservatives, or even Lloyd Georgeites, I would in the national interest say that the sooner control started, the better.

1152. *Chairman*: Take aircraft. You have not dealt with that. I want to test your view as to the practicability of one of these propositions that we have got to consider, and that proposition is that you can, as a practical matter, deal with this whole question of armaments from the point of view that there is a stage at which you can put your finger, and say it ceases to be one and becomes the other. Now, having regard to the evidence that we have had from Mr. McKinnon Wood yesterday, is there any stage in the aircraft branch at which you could put your finger and say, yes, it ceases to be one and becomes the other? Is it not obvious that—

Lord Marley: I do not know that we could indicate a precise stage. But let me say this. The British aircraft industry, by a process of national ignorance, is immensely behind the aircraft industry in other countries. It is not entirely the fault of the industry, but by reason of the short distances involved in this country, and so on; but none of our commercial aeroplanes, none of them, come within 100 per cent. of, say, American commercial planes. In other words, our commercial flying industry is hopelessly inefficient as compared with the progress made, say, in the United States, where a normal flying schedule of 16 to 18 hours from New York to Los Angeles is done in three or four times a day each way. At four o'clock in the evening you leave New York, and you arrive in Los Angeles at somewhere about eight in the morning, at a speed of from two hundred to two hundred and thirty miles an hour, a journey taking somewhere about four and a half days in the train. We have nothing to touch that.

1153. *Chairman*: That does not touch my question, as to whether in the aircraft industry it is practicable to employ this formula.

Lord Marley: Our point is that it is not practicable in the national interest to leave it to private enterprise. Private enterprise has so failed that we suggest that if we had, as has been suggested, so many national factories competing with each other—

1154. *Chairman*: I quite understand you advocate nationalisation of all these industries.

Lord Marley: All aeroplane industries, because 80 per cent. of the aeroplanes are used for fighting machines.

1155. *Chairman*: To go on, there is another question I want to ask on this same column, please. You set out a list of arms which in the process of manufacture are produced separately from all commercial work. You say there is a number of them, numbered from (a) to (h). Then the statement goes on: "Materials required for high explosive and shrapnel shell could be purchased in bar or billet from outside sources." Now, high explosive and shrapnel shell are No. (e). Is the proposal there that they should be manufactured from other than armour steel? I do not follow. Why should you purchase bar or billet from outside?

Lord Marley: Well, neither of these requires special steel. Any old stuff does for shrapnel. Shrapnel is merely a thin case with a number of small bullets inside made of anything which will penetrate and cut you up.

1156. *Chairman*: I follow. It is not necessary to use armament steel for that particular shell?

Lord Marley: No. Neither of those is armour piercing. High explosive is a steel shell to burst in the air.

1157. *Chairman*: I follow. Then, lower down, it is stated: "Thus, a separation of the manufacture of heavy arms from that of commercial steel goods,

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which is a practicable consideration, must assume the government's ownership and control of the steel works necessary for the manufacture of the war stores enumerated above." That means taking over, does it not, the whole trade of armament steel manufacture?

Lord Marley: Of armament steel, yes, that is so.

1158. *Chairman*: Then will you go to the last page? On the right-hand column, under the heading *Nationalisation of the Arms Industry*, it says: "(a) Heavy Arms. (b) Chemicals and Explosives. (c) Aircraft." Then it goes on to say: "Such nationalisation would have to be supplemented by control of the sources of raw materials, e.g., iron, nickel, etc." Now, there is a distinction drawn there between nationalisation of those enumerated heads, and control of some others. What is the difference which is suggested between nationalisation and control?

Lord Marley: The difference is that nationalisation involves the complete national ownership and control of the industry; but when you come to control, it is clear that unless you have a complete system of socialisation in a country you cannot nationally own the raw material, such as iron ore, because unless you have your complete socialisation a great deal of it is used for commercial work, so we say the nation has the right to have all that it needs of the best quality of that ore, wherever it is produced, in this country. Therefore we say we must control the production in order that we may have priority in saying to the private firms, "You have a particularly good type of ore in such-and-such an area, and we shall require from you next year 100,000 tons of that ore." Therefore we control that ore to this extent, that we reserve the right to the nation to have the first claim on the higher quality ore. With regard to the nickel that is mentioned here, I might say that 95 per cent. of all nickel in the world is produced in Canada, and, broadly speaking, no other nation in the world can produce armaments unless Canada provides them with the nickel. Broadly speaking, no other nation in the world can produce armaments, nickel steel, nickel armour plating, and so on, unless Canada provides them with the nickel for that purpose; and we have always said that an examination of the export trade in nickel would lead to very interesting conclusions. I hope, Sir John, that the Commission will go into that; and in any case we have given in our evidence a good deal concerning the nickel manufacturers which will, I am certain, repay study.

1159. *Chairman*: To complete even nationalisation of these industries, according to your view it is essential to have control of large quantities of raw materials?

Lord Marley: It is a matter of being able to secure that the raw material is available; that is what it really amounts to. I would not maintain, for instance, that we should necessarily include Sweden in the British Empire in order that we should have that Swedish steel. That would be contrary to the Covenant of the League of Nations, and I would not advocate that; but there is no reason why, as far as steel goes, we should not have the same arrangement with Sweden, or any other country, as an ordinary private manufacturer has.

1160. *Chairman*: But take iron ore in this country. You do not go so far as to say, "Well, we will nationalise all the iron ore in the country." You say, "We will do something rather short of that; we will control it sufficiently to enable us to nationalise the armament steel manufacture?"

Lord Marley: It is quite true that the people of this country are not yet educated up to require the nationalisation of steel production, but the British Government would be a manufacturer, and just as any other manufacturer does it would make its contracts with the ore-producing companies. But we go a little further than that, and we say that we as the British Government have the right to priority

in the claim for the best ore. After all, we claim it is in the national interest that our people should be defended, if you put it that way. We claim the right to have the best ore, and to have the particular commodities we desire. We are prepared to pay for them.

1161. *Chairman*: You understand, I am not criticising, but I just want to understand what it is that is being put forward. Now may I go to another point, in Chapter 3 of Part IV of the Statement of Evidence. Under the heading, "(3) Explosives, Ammunition and Intermediates," the third paragraph begins. "The manufacture of explosives covers a very wide field of chemical effort." You see, it is dealing with the production of what are called intermediates. "The manufacture of explosives covers a very wide field of chemical effort, much of which is completely free from any suspicion of interest in the supply of armaments. These factories and processes are those which deal with the manufacture of intermediates, or of materials which are near relations of those in the explosive groups." Then, omitting the next paragraph, it goes on: "The range of industries engaged in the production of chemicals which are intermediates for explosives is wide enough to embrace gas works, coke oven plants, and soap works in addition to chemical works proper, and to the factories engaged in making shell." Then it goes on, on the next page, the fourth paragraph on the left hand column: "It would appear reasonable to assume that any efficient organisation for military purposes would base its arsenals upon the use of the intermediate re-agents rather than upon the building up of an inelastic factory in which all the processes were carried through from the raw materials." Now you see the intermediates are said on the first paragraph on the right to include gas works, coke oven plants and soap works; but is it suggested in this next paragraph that the Government control for this purpose should include what are called intermediates, or included in intermediates?

Lord Marley: In that connection, these intermediates are obtained from factories—we will call them factories for the moment—which are producing material which is close to war material and could by a slight modification be applied to the production of war material; and therefore our contention is that from the point of view of saving money it is much cheaper to use these, what I might call intermediate factories, when the time comes rather than have special factories which would lie idle, and which might get out of date, but which would only be used when the time came to need them. That is the contention. Now the method of control—

1162. *Chairman*: But wait one moment. Is there to be no control during peace time, and only nationalisation in the event of emergency?

Lord Marley: That is the case with all these intermediate re-agent factories.

1163. *Chairman*: You are not suggesting the control of soap production in peace time?

Lord Marley: Not of soap. We do not suggest that; but there is a factor which comes from soap which is essential during war, and therefore we should control soap then. But however desirable that may be in other directions—soap is a very essential thing even in peace time—we do not propose that we should take over the control of soap in peace time.

1164. *Chairman*: Or gas?

Lord Marley: Well, gas is already very nearly taken over, Sir John, because the majority of gas works are municipal undertakings, and are therefore to that extent already nationalised.

1165. *Chairman*: I understand. The question was whether the suggestion here was that there should be any sort of control over these intermediates during peace time, and I understand you to say "No"?

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Lord Marley: The control would be only to this extent. It would be, as already exists, in the public law of this land. It would reserve to the nation the right to control in time of national emergency.

1166. *Chairman:* The reason I ask that is this. Will you turn to the ninth page of Chapter 3 of Part IV,* at the bottom of the left-hand column, the last paragraph but one. It begins:—

“Our problem will therefore be to separate (1) those industries supplying direct war material; (2) those capable of immediate interchange to war material; (3) those supplying intermediate products to existing armament firms; and (4) that part of the chemical industry which is only indirectly related to warfare production.

After consideration of these matters, the practicability of control will be discussed, and the problem is here complicated by the widespread control of certain of the large firms, who are at present engaged in producing explosive and pacific materials. Control may demand a spread to include sales services to the pacific industries of relatives of explosives, and in such cases as glycerine production to the control of soap factories, which are essentially suppliers for pacific uses”.

Now that does seem to suggest control of factories during peace time. Is that right?

Lord Marley: Well, only to this extent, that the factories enumerated, namely gas and soap, are not normally in peace time supplying all the by-products of their factories to the producers of war material at present. In other words—I think I am right in saying it, but perhaps I ought to be advised on this—the normal municipal gas works is not supplying any large portion of its spare products to explosive manufacturers, and I am not quite certain of this, but I think that the soap works are not normally supplying their by-products in peace time. It is only when the emergency of war demands it that there is this increase in production.

Sir William Jovitt: I am told you are quite wrong.

Lord Marley: Let me then stand corrected, Sir John, in this. May I ask Mr. Bernal to put you right?

1167. *Chairman:* We will give you a moment or two for reconsideration.

Mr. J. D. BERNAL, M.A., recalled.

Mr. Bernal: Well, Sir John, as far as this last point is concerned, just to get it clear, one of the main bases of course for explosives is glycerine, and of course all the glycerine does come from the soap works. All the glycerine needed for explosives used in peace time, to the extent of some hundreds of thousands of pounds a year, comes from the soap works, and in the same way suppliers of the other by-products which are the basis of explosives, picric acid, trinitrotolol, and so forth, are the gas works, and they all come from gas works in peace time; and of course there are much greater demands in war time.

1168. *Sir Philip Gibbs:* Are they under government control in peace time at all?

Mr. Bernal: Neither of those are under control in the sense of actual control of operation, but the government has a control first of all over all patents, that is, they have the right, as Lord Marley pointed out, of having a prior use of all patents connected with the chemical industry, and also I believe there have been arrangements made by which chemical factories are transformable to war purposes. I cannot say anything about the nature of those arrangements; the Commission of course could find those out.

1169. *Sir Thomas Allen:* There would be no need to control soap works, either in peace or war time, in order to get the glycerine, would there?

Lord Marley: I think you would have to control them in war time.

1170. *Sir Thomas Allen:* Not necessarily in war time because in war time the only object of controlling the soap works would be to produce more soap to produce more glycerine; but the government can produce glycerine at any time without controlling the soap works.

Lord Marley: And of course there is the question of price. We have got to protect the nation.

1171. *Sir Thomas Allen:* The price would naturally have to go up if you produced more soap than was required in order to get glycerine.

Professor Gutteridge: But surely it is not necessary to produce soap in order to get glycerine. I myself produced glycerine during the war from dead mules and all sorts of things.

Lord Marley: I am afraid I am not an expert on that.

Might I just refer for one moment to the gas companies. I think it is important to realise that the by-products of these companies—I think I am right in this—are disposed of purely on a commercial basis. There is no control at all at the present moment. They sell these by-products to whoever buys them, and there is no control, and I do not think the government has any special rights over them, bar the patents mentioned by Mr. Bernal. It is simply an ordinary commercial basis.

1172. *Chairman:* On the eleventh page of Chapter 3 of Part IV,† at the bottom right-hand column, it says: “The safety of the industry does therefore depend upon a wide control of many processes, in order to minimise the effects of such reactions, and the more effective the organisational control is, both in management and in sales agreements with ancillary industries, the more stable it will become. This survey brings out clearly the fact that the lethal substances and the explosives section of the industry can, with the exception of the type of product mentioned, . . .” I want to know what are the types of products mentioned. I cannot trace anything which would enable me to identify those exceptions.

Mr. Bernal: . . . “the exception to the type of products mentioned” refers, I think, mainly to chlorine and phosgene, which are commercial products, and can also be poison gases. They need special treatment.

1173. *Chairman:* There is one more passage I want an explanation of, please. It is on the 5th page of Part VIII,‡ in the middle of the bottom left hand paragraph on that page: “The technical discussion given leaves no doubt that we can separate these sections”—that means that armament section by itself—“However, we are of opinion that the complete nationalisation of the iron and steel industry is the only valid method”—I suppose “valid” there means effective?

Lord Marley: I suppose so, yes.

1174. *Chairman:* However, it does not very much matter—. . . “the only valid method of approach, because even if the armament section is nationalised, the position might arise in which this section dealing in highly specialised products would be under the control of a complete iron and steel trust which would be suppliers of the fundamental material for such products”. That is only again emphasising that you must have control of the material products in order to make your nationalisation of the armament industry effective?

Lord Marley: Yes. It is bringing out a possible difficulty which must be borne in mind in the recommendations which are made.

1175. *Chairman:* Very well, thank you. I am afraid I have been very troublesome, but I wanted to understand exactly what the position was.

Lord Marley: With regard to that last question, if you will turn to the continuation of that paragraph from which you quoted, you will see that we then deal with that particular difficulty which we mention. It begins: “The type of control suggested must be safeguarded against such a state

* Appendix, p. 189.

† Appendix, p. 191.

‡ Appendix, p. 210.

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[Continued.]

of affairs. This could be achieved . . ." and so on. 1176. *Dame Rachel Crowdy*: Lord Marley, Sir William Jowitt yesterday presented some proposals in connection with the licensing system. They are referred to in Part VII of your printed statement, and again at the end of the statement. Does the Union of Democratic Control not feel that most of those proposals, the major part of them, anyhow, are included in the American draft convention which is being discussed at Geneva? I have been very interested in the presentation of your case yesterday to find how little reference has been made either to the American draft convention or to any of the proposals that are being put forward in Geneva by the various governments and by the League staff itself during the last few years. I should like to ask whether, in the opinion of the Union of Democratic Control, if that American draft convention were accepted by the majority of the countries that matter, and if military aircraft as defined under the convention were controlled, a very large number of the difficulties we are discussing here today would not be put an end to?

Sir William Jowitt: I think, Dame Rachel, there is no doubt that the Union would say that if the American draft convention were adopted in its integrity we should consider that a very great stride forward would have been made—a very great stride. 1177. *Dame Rachel Crowdy*: And the Union would support the Government in that action?

Sir William Jowitt: Yes; and we very much hope that as a result of this evidence before this Royal Commission, if nothing more, the British Government may reconsider the attitude they took with regard to those proposals.

1178. *Dame Rachel Crowdy*: I could not find in your Statement of Evidence itself, or hear yesterday, that you defined military aircraft in any way. Have you in your own mind a definition, or do you accept the definition in Category III of the American draft convention? It is really most important, and was one of the most interesting discussions at Geneva. It affects the whole question of whether civil aircraft can be converted into military aircraft during a war.

Sir William Jowitt: I do not think there is any better definition that I can think of, or better scheme of separation than that indicated in the American proposals.

1179. *Dame Rachel Crowdy*: May I just read the definition as it is here? It is very short. It says "Air Armaments"—that is one of the categories which would be controlled under the convention—"1. Aircraft, assembled or dismantled, both heavier than and lighter than air, which by reason of their design or construction are adapted or intended either for military or naval reconnaissance, or for aerial combat by the use of machine guns or artillery, or for the carrying and dropping of bombs, or which are equipped with or prepared for any of the arms or appliances referred to in paragraph 2 below.

2. Special guns and machine guns for aircraft, and their gun mounts and frames. Bomb racks and torpedo carriers, and bomb or torpedo release mechanisms."

Lord Marley: That is a very wide definition. There are very few aircraft which would not come under that.

1180. *Dame Rachel Crowdy*: Is that accepted by your organisation? Are you to be understood when you speak of military aircraft as roughly meaning that?

Lord Marley: If you rely on that definition to cover military aircraft we shall be satisfied.

Mr. McKinnon Wood: Might I add that that would go a very long way but I think it is possible for absolutely civil aircraft to be used for highly offensive military purposes.

1181. *Dame Rachel Crowdy*: Not for fighting purposes but for use as bombing aeroplanes?

Mr. McKinnon Wood: Yes, not for aerial fighting but for attacking a city and bombing indiscriminately, with explosive bombs and poisonous

gases. For that purpose even a small aeroplane is quite useful.

1182. *Dame Rachel Crowdy*: They are easily convertible?

Mr. McKinnon Wood: That can be done even without conversion.

Lord Marley: That definition covers that I think.

1183. *Sir Kenneth Lee*: In order to get it on the record could Lord Marley tell us the membership of the Union of Democratic Control?

Lord Marley: The number of members?

1184. *Sir Kenneth Lee*: Yes.

Lord Marley: I am afraid that at the present moment, without going through our files, it would be impossible to say. We could send you a letter giving that information.

1185. *Sir Kenneth Lee*: Approximately; I do not mean exactly.

Lord Marley: That letter will be sent. We can give you then the exact figures and we shall give you the membership of Committee and all the rest of it.

1186. *Sir Kenneth Lee*: I was only wanting a general figure.

Lord Marley: We would rather not give a figure without looking at our index.

1187. *Mr. Spender*: Since expenditure is rather an important point in this matter, could you answer one question? Do you propose to compensate the owners of shares in munition concerns in the event of nationalisation or taking over?

Lord Marley: That would be a matter for the government dealing with the problem to decide. We cannot say in advance what policy a government which nationalises an industry would adopt.

1188. *Mr. Spender*: It is rather important for us to have some kind of knowledge of what is proposed by people advocating these changes.

Lord Marley: We are not proposing to be the government.

1189. *Mr. Spender*: We have had an answer to that question from the Independent Labour Party. Mr. Fenner Brockway said he did not propose to compensate beyond giving a "dole" to distressed shareholders. Is that the view of your Union?

Lord Marley: That is the reason why I brought out a few minutes ago that we are not a political body. We do not pretend to have a political solution for all our problems. We believe this, that nationalisation as far as it can go is advisable and necessary but we believe that if the government of to-day had the commonsense to adopt our proposals they would have enough commonsense to work out the details under which they would nationalise.

1190. *Mr. Spender*: I suggest to you that "commonsense" would depend not a little on the amount of money which would have to be expended.

Lord Marley: That would be a matter for the government.

1191. *Mr. Spender*: You are not prepared to offer any advice?

Lord Marley: It would be no good my giving you my individual opinion.

1192. *Mr. Spender*: The opinion of the Union is what I mean.

Lord Marley: The Union is not a political body.

1193. *Mr. Spender*: It has no views on that subject?

Lord Marley: It may have views but it does not express them in connection with these principles, because we know that there may be quite a number of solutions. We might have a National Government, or a Conservative Government, or Mr. Lloyd George might come back, or Mr. Harry Pollitt or other people.

1194. *Mr. Spender*: But you put forward a very comprehensive scheme of change, of which one of the material factors must be expenditure, and you say you do not advise us on the amount of expenditure which may be incurred and in which compensation is a very material factor.

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Lord Marley: I may say that we have very great reliance on the Royal Commission and we are perfectly certain that if they feel that a broad scheme of nationalisation is desirable they will be able to devise the type or the method of compensation, if any. . . .

1195. *Mr. Spender:* If any?

Lord Marley: Yes—which should be applied.

1196. *Mr. Spender:* I cannot take it further than that, but I should like just to ask you about one more point. You speak somewhere of the importance in this matter of the pressure of opinion which is brought to bear on governments. You tell us somewhere in your evidence about "those who make a living by the manufacture of armaments". Would that pressure be likely to be altered if governments had the monopoly in the manufacture of armaments, because the number of those who make a living at it would not be substantially altered? You say in one part of your evidence that 170,000 people are employed in the chemical industries, and, of course, there would be an immense number employed in iron and steel and the subsidiary interests and in the dockyards. Do not you imagine that the pressure might only be transferred from one set of people to another set of people?

Lord Marley: In that connection I happen to have some personal experience, by reason of the fact that I have fought constituencies including Royal Dockyards, and I was Secretary of the National Committee on Royal Dockyards—the political committee—and my experience was that in the great dockyard centres, Plymouth and Devonport, Portsmouth, and Chatham, Sheerness and Woolwich, in those dockyard and arsenal centres, the workers, whose whole life was bound up with the prosperity of the firms in which they had invested their lives, were the very people who opposed war, and who demanded a pacific policy on the part of the government.

1197. *Mr. Spender:* I quite follow that; but at the same time it is not always easy in electioneering to put two and two together. My own experience—and I have had some, and have seen dockyard constituencies as well as others—has been that there has been great pressure on the members for dockyard constituencies to keep the estimates high for the construction of the particular armaments that are being made in the dockyard.

Lord Marley: That is not my experience. The pressure that I came across during a good many years experience in this connection was much more of pressure to demand that the allocation of orders for new material, orders for repairs, and orders for spares, should be reasonably divided between the Royal yards and the private yards; and the Royal yards, very naturally, put forward this factor, that if the production allocated to the Royal yards were diminished, it would mean high overhead expenses when they were not being utilised to the full, and in consequence it would be made to appear that the public yards cost more to produce a given article than did the private yards. That was the pressure that was brought; it was on the lines of efficiency.

1198. *Mr. Spender:* It would take that form, that "a proportion should be allotted to us"?

Lord Marley: Yes; and I may say—and I want to emphasise this and am glad you asked this question—that my experience was that the feeling amongst those people was to oppose high estimates, and that feeling was very strongly voiced in the dockyard towns. It was a very remarkable phenomenon.

1199. *Mr. Spender:* That is, in the perfectly general terms in which peace resolutions are naturally and rightly put forward; but I would just ask you to consider that we have had specific instances to the contrary of what you are suggesting, and that great pressure was brought to bear, I remember, on the Labour Government to build five cruisers. That

is an example of a great deal of the sort of pressure that goes on.

Lord Marley: You are referring to 1924?

1200. *Mr. Spender:* Yes.

Lord Marley: I was fighting a division then in the immediate neighbourhood of Portsmouth. I spoke at a good many meetings in Portsmouth at that time, and my own experience was that when I opposed high estimates for the services I got a very widespread body of support behind me among the dockyard workers.

Mr. Spender: I should not question that, but I simply suggest a particular experience to show how great the pressure was now it has been brought home to all of us who have been concerned in these matters.

1201. *Sir Philip Gibbs:* Are you familiar at all, Lord Marley, with the functioning of the Ministry of Munitions during the War?

Lord Marley: I am afraid I was only a user of the products.

1202. *Sir Philip Gibbs:* For instance, did you read Dr. Addison's evidence and the statement he put in before this Commission?

Lord Marley: I read a summary of it. I am afraid I did not read every word.

1203. *Sir Philip Gibbs:* I was wondering, for instance whether you would agree that during the War the Ministry of Munitions did actually exercise a control not only over the manufacture of arms and explosives but also over the raw materials which were necessary.

Lord Marley: I am afraid I have not got the technical knowledge to say about that.

1204. *Sir Philip Gibbs:* It was rather in favour of your argument as a matter of fact; but I think we have got all we wanted from Dr. Addison, and that is that the Ministry of Munitions did actually control the sources of supply of steel for guns and poison gas and so forth.

Lord Marley: Yes, I understood that, but I did not know it of my own knowledge.

Sir Philip Gibbs: Therefore I was going to ask you whether you would say that such a thing could happen in peace time as well as during war. I was wanting your views on the subject. Of course, we think that there should be no difference in peace and war in obtaining the maximum efficiency in every direction. If a thing is necessary in war we cannot see why it should not be necessary in peace.

1205. *Professor Gutteridge:* I am not quite sure that I followed one thing about this. You were referring to a service between New York and Los Angeles. That is a private enterprise, is it not?

Lord Marley: Purely.

1206. *Professor Gutteridge:* How does that help your argument?

Lord Marley: The point is, it is subsidised by the American Government.

1207. *Professor Gutteridge:* But it is carried out by private people?

Lord Marley: Yes, but only because they get an enormous material subsidy from the United States Government, or did up till quite recently.

1208. *Professor Gutteridge:* In other words, if that is so, what we ought to do is that our Government ought to subsidise commercial aeroplanes?

Lord Marley: I would not be against it, so long as we were getting value for it.

1209. *Professor Gutteridge:* I wanted to see what was in your mind, that is all.

Lord Marley: What is in my mind is that in this country commercial flying has been allowed to drop so far behind the state of affairs that obtains in other parts of the world because it has been left entirely to uncontrolled private enterprise, and that commercial flying is about 20 per cent. of all our aeroplane production in this country. And we believe that the other 80 per cent. has been allowed

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[Continued.]

to get equally behind; and in the national interest, if you have got to have air forces, we believe they should be efficient.

1210. *Professor Gutteridge*: But there is no need to nationalise it, surely, for that purpose. The Americans have not done it. Why should we do it? I merely make that observation, because everything depends, does it not, on whether we come to the conclusion that state enterprise or private enterprise is the more efficient?

Lord Marley: But of course you have to remember that while we have left it as it is in this country, we are behindhand, and you have to remember that in the United States there arose, as a result of this system of subsidy, some of the most extraordinary scandals in connection with the inflation of shares and the mail subsidies which the world has known.

1211. *Professor Gutteridge*: Yes, I remember the incidents to which you refer.

Lord Marley: That corruption is the sort of thing that we are against. You may get enormous expenditure of public money, and you may get an efficient force, and you may get terrible corruption. You may get no expenditure of public money, an inefficient force, and no corruption. But if you want efficient aeroplanes and no corruption, you have got to nationalise your industry.

1212. *Professor Gutteridge*: The only point that I wanted to get at was that it seems to me that the point you made about the American aircraft applies equally to the private control of the industry?

Lord Marley: I say that under nationalisation you would get your efficient planes without the corruption.

Professor Gutteridge: Yes, that is the issue.

Chairman: Thank you, Lord Marley. I think that is all we wanted to ask.

1213. *Sir William Jovitt*: There was some question which Sir Philip asked about the figures of exports of explosives. I think I promised to try to get the figures. I gave the figure of £1,200,000 as the total export according to the Answer in the House of Commons. I have not myself seen the build-up of that figure. It would be very easy for you to get that from the Government Department concerned. Mr. Bernal has been looking into the League of Nations publications for the year 1934. I quoted the year 1934, and it seems a little difficult to reconcile those figures with the Government's Answer.

Mr. Bernal: The actual figures given in the League of Nations 1934 Report on the Arms Trade relate to 1932. Perhaps I might be permitted to forward some statistics to the Commission bearing on the point.

I might say, with regard to an answer to another question as to what countries were capable of providing explosives and chemicals for warfare, it turns out that the actual number providing them in any serious quantity is very small. There are only six countries in all that provide any substantial quantity of those. By far the largest is the United Kingdom, then the United States, France, Sweden, and Belgium. Germany of course is not allowed under the Treaty of Versailles—I am basing myself on the League of Nations figures—

1214. *Professor Gutteridge*: Is that why you exclude Russia, too?

Mr. Bernal: Russia does not export them. I am only dealing with exports. Then if we take Japan, the export there we know has been considerably increased in the last two or three years; and we can certainly add Russia to that list, and then I think we have the only countries which are capable of producing explosives or chemicals on a large scale. There is a list of roughly forty countries which produce no explosives at all for export. That includes the whole of Central and South America, and also several of the smaller European countries.

Sir William Jovitt: I am going to forward to the Commission letters dealing with two topics. One is our view as to the extent to which this high-class armament steel is used, apart from its fundamental use for armaments. If I can get you any information about that I will. The other is as to the question of the composition of the Union for which I am appearing. Of course, it falls under two heads: there are the individual members, and it is also a union of affiliated societies. For instance, the Royal Arsenal Co-operative Society, with 320,000 members, is affiliated to this Union, and other bodies of a like sort; but we will get you the precise figures and let you know. Thank you very much, Sir John.

1215. *Chairman*: Then we shall adjourn now. We do not propose to sit again for some considerable time: the holidays are intervening.

Lord Marley: Perhaps I might take the opportunity on behalf of the Union of Democratic Control of thanking you and the other members of the Royal Commission for the patience they have shown in hearing the rather voluminous and technical evidence we have submitted.

Adjourned.

APPENDIX

STATEMENT OF EVIDENCE SUBMITTED BY THE UNION OF
DEMOCRATIC CONTROL

PART I

Terms of Reference

The appointment of the Royal Commission on the Private Manufacture of and Trading in Arms has been made at an opportune moment, at the commencement of the greatest race in arms the world has known. It has an opportunity of advising the Government to take over the manufacture of and trading in weapons of war, thereby removing one of the powerful incentives to war preparations, i.e. the enormous profits made by the private manufacture of arms. The Union of Democratic Control at the outset would like to refer to the terms of reference for preliminary consideration.

Personnel.

The Prime Minister on 3rd May, 1935, stated, in reply to a question in the House of Commons:—

"There are no assessors or technical advisers at present attached to the Royal Commission. If the Commission desire such assistance, they will no doubt ask for it."

The Union of Democratic Control believes that it is essential to enlist the services of such experts. The case which they are putting forward has been compiled mainly by experts on various aspects of the industry, and technical advice will be essential for an adequate study of the problems which are involved. This is equally, if not more, the case with the evidence which, it is understood, will be given by the armament firms and by representatives of the relevant Government Departments.

For this reason the Union of Democratic Control suggests that the Commission should ask for this expert assistance for the purpose of examining the documents, books and factories of the privately owned arms and munitions industry. It is considered that Government Officials, e.g. Board of Trade Surveyors and Factory Inspectors would be among those who could provide this assistance.

Documents.

The armament firms and Government Departments in this country have had ample warning, and the Union of Democratic Control suggests that full advantage be taken of the terms of reference concerning documents.

The terms of reference on this point state:—

"We do by these Presents give and grant unto you, or any three or more of you, full power to call before you such persons as you shall judge likely to afford you any information upon the subject of this Our Commission; to call for information in writing; and also to call for, have access to and examine all such books, documents, registers and records as may afford you the fullest information on the subject, and to enquire of and concerning the premises by all other lawful ways and means whatsoever."

The Commission will recognise that the Union of Democratic Control are not in a position to give detailed lists of all relevant documents but suggest that the Commission can obtain from the parties concerned a full disclosure of such documents. The Union of Democratic Control are however able to suggest to the Commission a few instances of the kind of documents for which inquiries ought to be made. These instances by no means exhaust the many descriptions which could be given of relevant documents. The type of information may be summarised as follows:—

1. *A complete list of arms and munitions factories abroad owned and controlled by British firms.*
 - (a) Their production and organisation.
 - (b) Their relations, if any, with government of country where situated, e.g., Resitza firm of Roumania, of which Vickers hold 27 per cent. of shares, and the Roumanian Government 60 per cent.
 - (c) Costs for representative arms and munitions supplied to foreign countries.
 - (d) Books showing production, and in the case of export the amount and destination, of arms and munitions made by factories abroad.
2. *Financial transactions with Foreign Governments.*
 - (a) A list of loans and their conditions with which armament firms were associated, e.g., Vickers and the Chinese loan.
3. *Documents showing the method of distributing contracts by the British Government.*
4. *Information on licensing system.*
 - (a) Full list of licences granted with names of firms and arms or munitions exported.
 - (b) Full list of licences refused. By whom demanded, and reason for refusal.
 - (c) Correspondence of armament firms with the Government Departments concerned, i.e., Foreign Office, Board of Trade, Admiralty, War Office and Air Ministry re export trade.
5. *British Officials abroad.*
 - (a) Consular reports re imports of British arms and munitions by country in which they are situated.
 - (b) Consular reports of exports of arms and munitions by foreign factories of British firms.
6. *Organisation of existing State Arsenals and Dockyards.*
 - (a) Their present capacity.
 - (b) Their capacity for expansion.
 - (c) Their methods of costing.
7. *Officials of Armament Firms.*

Agreements with leading officials, e.g., between Vickers Ltd., and Sir Basil Zaharoff and with Sir Charles Craven relating to military sales.
8. *Press Departments.*

Correspondence of the Press Departments of the main armament firms, especially of Vickers Ltd. and I.C.I. Ltd.
9. *Vickers and Krupps.*

Agreements between Vickers and Krupps relating to the use of patents during the War.
10. *Subsidies from Government Departments.*

Any arrangements with firms in lieu of a subsidy by which the firms receive the monetary effect of a subsidy, e.g., by the arrangement of a price which, over a period, includes what would be the amount of the subsidy for that period.
11. *Accounts.*

The armour plate control accounts of English Steel Corporation, Beardmore and Firth Brown with explanatory notes as to how the figures entering those accounts have been built up.

12. *Costings.*

The original cost sheets—

- (a) for armament production and prices charged to the Government;
- (b) showing how costs are made for armament work and for commercial work.

13. *Entertaining Expenses.*

Accounts of Abbey House, Barrow, and of such places as the Inspector's Dining Rooms at Sheffield.

Witnesses.

It is essential that the Royal Commission, assisted by experts, should hear witnesses representing every sphere of the industry, both on its manufacturing and on its trading sides. Further, witnesses should be called from the Foreign Office, the Board of Trade, the War Office, Admiralty, Air Ministry and Treasury.

Again, in order to assist the Commission, the Union of Democratic Control has compiled the following list of people who, it is suggested, could give indispensable information on one or another aspect of manufacture and trade.

*List of Witnesses.**Vickers.*

Mr. Reid Young (Secretary of Vickers Ltd.).
 Sir Charles Craven.
 Sir Basil Zaharoff.
 Lieut.-Commander Cummings.
 Mr. Douglas Vickers.
 Sir Mark Webster Jenkinson.
 Mr. Caillard.
 Mr. A. Dunbar (Commercial Manager, English Steel Corporation. Formerly Commercial Manager at Elswick Works).
 Sir J. A. Cooper.
 Captain Whyham (Gun mounting overseer at Barrow Works).
 Sir Otto Niemeyer.
 Mr. Horsman Bailey (Solicitor in London Office, Vickers, Ltd.).
 Rear-Admiral Patterson (Special Director, English Steel Corporation).
 Mr. W. L. Hichens (Cammell Lairds and English Steel Corporation).

Imperial Chemical Industries.

Sir Harry McGowan.
 Mr. H. J. Mitchell.
 Colonel W. N. Taylor.

Messrs. John Brown & Co. Ltd.

Sir Holberry Mewforth.
 Admiral Sir Reginald Bacon.

Armstrong Siddeley Development Co.

Air Marshall Sir John F. A. Higgins.
 Mr. Green (late Royal Aeronautical Establishment).

Fairey Aviation Co.

Mr. Charles Fairey.

Government Departments.

- (1) Inspectors of Admiralty, War Office and Air Ministry.
- (2) Government auditors.

Places.

The terms of reference of the Commission state:—

"And We do by these Presents authorise and empower you, or any of you, to visit and personally inspect such places as you may deem it expedient so to inspect for the more effectual carrying out of the purposes aforesaid."

It is suggested that the Commission, accompanied by technical advisers, should visit the main armament producing factories. Particular attention should be paid to the heavy armament industry and to that of aircraft.

In view of the arguments generally put forward by the armament manufacturers that their works are efficient, modernised and capable of rapid expansion, it is suggested that the Commission with one or more of their experts, inspect the Cyclops works of the English Steel Corporation, a subsidiary of Messrs. Vickers-Armstrongs and Messrs. Cammell Laird. These works are exclusively devoted to the production of armour plate and bullet proof plate, and are, we have reason to believe, typical of the heavy armament shops. It is suggested that the Commission note particularly the age and condition of the machines, overhead cranes and furnaces and that they make inquiries as to whether these works are now in an efficient condition, and if efficient for how long they have been in this condition.

The Union of Democratic Control is, of course, not in a position to know many of the facts which the Commission will no doubt desire to obtain and the case presented by the Union of Democratic Control is concerned to assist the Commission by putting forward such facts and suggestions as they can, feeling sure that the Commission will appreciate the inherent difficulties of presenting a complete case in the absence of many of the material facts and documents. Nevertheless the Union of Democratic Control are satisfied that the case which they put forward is supported by the material in their possession and that further disclosure of facts and documents will serve still further to support that case.

PART II

The Special Nature of the Armaments Industry

The Union of Democratic Control has never maintained that the private manufacture of arms by itself is the cause of wars. But the influence of the armament manufacturers in the years leading up to the war of 1914-1918 is now too well known to require elaboration. International affairs to-day bear a strong resemblance to that of the period immediately preceding the last war. The activities of the armament manufacturers are not only the expression of a deepening war situation, but they heighten the tempo of war preparations. The armaments race has begun. The pre-war race in naval armaments has its parallel to-day in the aircraft race. The situation is ripe for exploitation by those whose vested interests are in war and in war preparations.

The existence of the private industry in arms and munitions has created an enormous vested interest in war, in preparations for war, and in the state of international tension in which war is accepted as probable, if not inevitable. The financial aspect of the armament industries will be

described. Here it should be noted that it would be impossible, without access to the books of the industry, to make an approximate estimate of the capital involved on which profits have to be made in the interests of the shareholders. Even with access to such books there is the problem of division of capital in certain firms such as Vickers Ltd., into that which might reasonably be called armament capital and that which is used in non-armament work.

Nevertheless, it is hoped that the Royal Commission, on the basis of the documentary evidence they may have obtained at our suggestion from the industry, will consider this aspect of the problem, i.e., the enormous vested interest in the private manufacture of arms and munitions of war, and in those firms, covering a wide area of British industry, concerned with the raw materials of the armaments industry.

A survey of the shareholders lists at Somerset House shows that the entire capital owning section of the community is represented. All have an

interest in increased profits and increased profits can only come from the preparations for war or from war itself. This is one of the more undesirable features of the private manufacture of arms and munitions.

The most important category is the *international* armament makers, whose wealth and influence is incalculable. The second category consists of thousands of people in all ranks of life who, as lesser shareholders, play no part in policy, but benefit by the sale of arms.

All, however, draw their profits from the manufacture of and trade in arms, the profits of which run into an immense sum every year. During the period of the Disarmament Conference such profits have enormously increased particularly in aircraft companies and the present programmes of the National Government will lead to a continuation and further increase in such profits.

It may be argued that under the present economic system the investment of capital for the purpose of earning profits is a normal procedure. But some differentiation must be made between the arms industry and those industries which produce goods of commercial value. It may be useful to point out the fundamental differences between the causes of a demand for armaments and that for other commodities.

If a manufacturer wishes to extend the sale of his wares, both in this country and abroad, he advertises, tries to supply a better or cheaper article than his rivals, and generally tries to persuade possible consumers that they will get more value in use from their purchases than the money they will expend on them. The amount of the sales

which he can effect in this way depends partly upon the wealth of such consumers, partly upon his success in creating the opinion that it is important for or useful to the consumer to possess the article. But the demand for armaments differs in several respects from the demand for ordinary commodities.

1. A manufacturer of commercial goods who increases his sales in a foreign country does not, by so doing, increase his home demand; in the case of armaments he does. If an English firm builds destroyers and submarines for a foreign government this tends to lead to a demand for an increase in the British Navy.

2. A foreign manufacturer who increases sales in his own country, does not by so doing increase the demand for the commodity in our country, but in the case of armaments he does. If Krupps can persuade Germany to order more artillery, this leads to a demand for more artillery in England.

3. In the case of armaments the consumer is the state and has great wealth or resources; thus if the state can be persuaded that armaments are necessary, they will be bought whatever the cost. But however necessary commercial goods may be, a maker cannot increase his sales among the poor.

4. In the case of armaments the consumer is the state and the usual methods of advertising are not efficacious; they can, however, be replaced by the interested parties working up a patriotic agitation. Lord Snowden's speech on the Naval Estimates in 1914 made Members of Parliament aware of the way in which the scare of 1909 was managed.

Thus, whereas the interests of ordinary men lie in peace and security, the interests of those who live by the sale of arms and materials of war lie in fear, insecurity and ultimately, in war.

PART III

The Financial Aspects of the Armament Industry

It will be essential to discuss the financial aspects of the arms industry which is characteristic of and a strategic part of the present economic system.

Superficial simplicity.

The financial aspects of the armaments industries present an exterior which is superficially simple. There are a relatively small number of firms which claim to manufacture armaments, the great majority of them in conjunction with civil production. These firms present the familiar facets of the finances of capitalist industry. There are balance sheets of varying strengths, and profit and loss accounts, showing figures which, as a whole, are of amazing moderation. At the general meetings reference is usually made to the duty which the firm in question renders to the country for the production of weapons for the defence forces, and these references are frequently accompanied by complaints concerning the heavy competition to which the company is subjected both at home and abroad. Relations with the Admiralty, the Air Ministry or the War Office, as the case may be, remain like the relations with Foreign Powers in the King's Speech—friendly.

A careful study of the financial aspects of the armaments industry reveals that advantage has been taken of every nuance and complication that the company laws permit, and that so far from the picture being one of the essential simplicity of a number of direct manufacturers of goods, we are dealing with a complicated arrangement of trusts with their subsidiaries, financial and manufacturing, their cartels, their interlocking directorates and agreements stretched out and embracing a series of firms, banks and connections both at home and abroad which are largely unsuspected by the public at large.

Ingenious Accountancy.

It would, of course, be easy to present to the Commission classified data of the public companies which represent the "facade" of the industry. Such is the ingenuity of the practice of accountancy in this

country that balance sheets, details of capital, comparative profits, reserves, dividends, etc., covering a substantial period of years, all tabulated, can be presented to prove the innocence of the armament industry. Eloquent graphs could be drawn up to show the amazing rises in the values of armament shares at periods of public anxiety. The sensitivity of the Stock Exchange markets at the present time is an excellent example of this and the ruling prices of such shares as Rolls-Royce, Hawker, Fairey and Vickers might well be compared with the prices of the same shares two months back. But in truth these graphs would prove little but the intelligence of stock market speculators, while the corresponding falls in share values following the publication of pacific announcements by well-known statesmen are merely stigmata of bad news received by any market.

There is a class of speculative investor which regards purchases of such armament shares as Vickers, Imperial Chemical Industries, Hawker, etc., as legitimate insurances against the dangers accruing to peace-time investments during times of war, and any losses which may follow on the sale of these shares during a peaceful period are regarded as legitimate insurance premiums.

Balance sheets and profit figures are clearly valueless when dealing with trusts which are both vertical and horizontal. In such cases it is obvious that final profit figures and the payment of dividends may be sensibly diminished by the retention of substantial sums of money in the coffers of any one of the number of operating subsidiaries. Here the profits may be used for the purchase of property, stock or investments (frequently of an interlocking nature). The profits may promptly be written down in the subsidiary's balance sheet to a fantastically low figure, and safely hidden from the view of the investigator.

The Transfer of Profits.

A popular method of transferring profits from one subsidiary to another is by the internal sale

of raw materials or half completed goods where firms like Vickers are linked up with firms producing raw or half-finished products as in the case of the English Steel Corporation. The prices are calculated in order to show the profits at those points desired by the trust concerned, or alternatively at rates which are arranged in order to leave substantial profit margins during the progress of the goods through the trusts.

For instance nickel could be purchased by High Speed Steel Alloys Ltd. in which Vickers, through the English Steel Corporation has large holdings. High Speed Steel Alloys Ltd. would obtain this nickel perhaps through the Steel Manufacturers Nickel Syndicate Ltd., controlled by Vickers and other armament manufacturers, from International Nickel, a member of the Imperial Chemical Industries Group or else from S. A. le Nickel the French concern in which Vickers have large investments. This nickel is then sold to the English Steel Corporation who employ it in the manufacture of armament steel which is sold in a semi-finished condition to Vickers-Armstrongs, who turn it into the finished product.

A profit is made at each stage of this transaction and, in this instance, the Government are not favoured with the advantage of a rebate. This is concealed from them at the point where the nickel in its raw state is sold to the English Steel Corporation.

Hence a submarine purchased by the British Government from Vickers-Armstrongs would represent the profit to Vickers-Armstrongs, to the English Steel Corporation and to the High Speed Steel Alloys Ltd., etc. which are all linked up as part of the Vickers group with a number of directors common to all who will have fees from each concern.

Directors' fees.

Similarly the heads of the industries are able to recoup themselves by means of expense items drawn from the subsidiaries and by managing directors' commissions at each stage in the process of the trust. To the public their remuneration appears to be only a very moderate director's fee, and where they are also shareholders, the often meagre dividend payments which are published in the newspapers.

Such practices are the ordinary every day methods of business organisation, but our accusations are only general and are difficult definitely to prove without the right of cross-examination and the sequestration of the account books, ordinary and private, of all the companies with their subsidiaries.

Method of Investigation.

Faced with these difficulties it is necessary to abandon the ordinary methods of investigation and to attempt the unpleasant task of stripping from the skeleton of the armaments industry its flesh and of examining the bones, sinews, tendons and nerve centres which lie beneath. Realising that the figures could prove little of value in their very innocence, it has been decided to expose what are the true ramifications of the industry through its agencies, shareholders, debenture holders, interlocking directorships, control of marketing agreements and by the utilisation of a mass of miscellaneous information which needs registration under the laws of the land but which can only be pieced together as the result of immense and patient labour.

For example, it is necessary carefully to examine the records of a large number of private companies at Somerset House and it should be noted when using the Directory of Directors, that a number of gentlemen are careless in recording the details of some of their affiliations with private companies. Closer consideration however often exhibits a number of close connections between companies of an apparently unsuspicious nature.

The Shelter of Nominees.

The task is onerous and there is one difficulty which needs special mention. There is a common system in the financial world of registering large blocks of securities in the names of banks and individuals who are not the owners of the stock in question but only the nominees of the actual owners.

Such registrations, of course, often only indicate that the securities in question are being held by the bank as security against accommodation granted in the ordinary way of business, and in other cases the banks may have acquired the securities themselves, although it is sometimes difficult to differentiate between banks as owners and banks as nominees. But there is sometimes a more sinister application of this practice. The registration of large shareholdings in nominees' names may be carried out in order to hide from the public at large where the real control of the business lies.

Particular attention should be paid to such instances as where large blocks of shares may be found in the names of one or two gentlemen or ladies with a residence in some innocuous suburb such as: Mr. Smith, 23, Park Avenue, Tooting; where it may be found that although the shares are registered in these names, the control is safeguarded by the fact that the certificates of the shares, together with blank transfers, signed by the nominees, have been lodged with the real owners in order to safeguard their position.

It will frequently be found that a subsidiary may be owned jointly by two or three armament manufacturers, the majority shareholdings being in nominees' names, the various companies being only recognisable by other affiliations on the part of the directors.

Investigators should also take care to examine the implications of "voting" shares, a system whereby voting control of the company is often vested in a very small number of shareholders despite the fact that the large percentage of the equity capital rests in other hands. Outside the armaments industry striking examples may be found in such companies as J. Lyons & Co., Ltd., Carreras, Ltd., and Marks & Spencer, Ltd., and there is reason to believe that this commercially useful expedient has often been adapted to less innocent purposes in the armaments industry.

An interesting example of the means by which control is hidden is shown in the case of the Broadway Finance & Investment Co. This company was originally registered as the Electric Ordnance and Accessories Co., but in 1923 it was reorganised and practically the entire share capital registered in the name of two nominees who were officials of the Anglo-International Bank. The directors of the company were, however, all nominees of Vickers, though it is interesting to note that only in the case of one individual (Sir Mark Webster Jenkinson), is the director of this company noticed in the Directory of Directors.

The address was 34, Nicholas Lane. Thus anyone who saw in the shareholders of another company the name of the Broadway Finance & Investment Co. would not associate this company with the Vickers group. It is perhaps significant to note that recently the registered office of the company has been moved to Vickers House, 6, Broadway, Westminster, but in the return to Somerset House the address is given, not as Vickers House, but as 6, Broadway. Parenthetically, it might be observed that the title of the firm, the Broadway Finance and Investment Co. is derived from the street, the Broadway, Westminster, where Vickers offices are situated.

It may be noted that the unsatisfactory nature of concealed nominees and shareholdings has recently been realised and was adversely referred to in the House of Commons recently by members of all parties during the discussion of the commodities scandals.

Interlocking Directorates.

Another phase of great importance is the influence of directors who hold directorships on a number of boards. This is particularly significant in the cases where directorates are in the armaments industry on the one side and the banking world on the other.

In this memorandum and in the diagram which illustrates it,* references are made to the machinations of a number of financial firms, such as Glyn Mills, the Anglo-International Bank, the Bank of Roumania, the Ottoman Bank both in London and Paris, and such private banking houses as Kleinwort and Dawney Day and other well-known companies.

* Figure 1.

Armament Loans.

The linking up of the armaments industry and finance can also be observed in a study of loans made possible on conditions of reciprocity which bring profits to the armament firms and certain poverty with uncertain security to the countries accepting the loan.

Government Bond issues in fact occur in the scheme of armament finance in a quite unexpected manner. Thus the £1,803,000 Chinese Government 8 per cent. sterling notes 1925-1929 (China-Vickers Loan) were issued in 1919 by the Chinese Government to Vickers Ltd. in payment of certain aircraft and munitions of war. The details of these notes were communicated to Messrs. Vickers Ltd. through the good services of the British Minister in Peking and H.M. Foreign Office, and on receipt of these notes they were floated on the London Stock Market by Messrs. Vickers Ltd. so that the armament firm received, by this means, payment for their goods in cash. In 1921 Vickers Ltd. announced that the service of this loan would be paid out of the surplus Chinese salt revenues, but objections were raised to these payments by the International Financial Consortium in China with the result that no coupons have been paid since June, 1922, and the bonds are now quoted on the London Stock Exchange at less than one-fourteenth of their original value.

Thus, the general investing public were victimised and it would seem that the British Government of that period were largely to blame in allowing such a thing to take place. It is clearly improper that the British Government should be used as a method of financing the sale of British armaments to foreign powers, particularly when the British investor is called upon, in the long run, to pay eleven-twelfths of the price.

Financial Aspects of I.C.I. Ltd.

The attention of the Commission must also be drawn to the financial aspects of the munitions industry which means, in practice, to I.C.I. Ltd. I.C.I. is the principal manufacturer of small arm ammunition, of military explosives, of poison gas, and of practically all the component parts of chemical warfare as well as of many of the component parts of "defence" against poison gas.

It will be observed from the Imperial Chemical Industries diagrams* that there is a vast number of vital link-ups which bring in such names as the International Nickel Co., the Castner Kellner Alkali Co., Murex, British Dyestuffs, I.C.I. Metals, Kynochs, Distillers, du Pont de Nemours (The American Chemical combine), I.C.I. Explosives, Nobels Explosives, the Sedgwick Gunpowder Co., the Finance Corporation of Great Britain and America, the General Motors, and finally, the I.G. Farbenindustrie who are the principal manufacturers of chemical warfare materials in Germany.

Taking into consideration the greater efficiency with regard to rationalisation and general operation which characterises the I.C.I. group as operated in comparison with the Vickers-Armstrong group, it may be taken that all the remarks which have been made with regard to links, shareholdings and controls in the Vickers-Armstrong group will be found to apply equally to the I.C.I. group. Obviously the members of the Commission will have already made themselves familiar with that part of the public evidence from the American Senatorial Inquiry on the Armaments Industry which deals in such great and revealing detail with I.C.I. and more especially with its international ramifications and agreements.

Aircraft Finance.

Special attention should be paid to the financial aspects of the race in aircraft which is an outstanding feature of the armaments race to-day. Compared with the trusts which have been shown heretofore, the aviation industry in general provides at the moment a fairly simple field of investigation.

In truth the aviation industry is at very much the same stage as the chemical industry was 25 years ago, and the heavy armaments industry 50 years ago.

There are signs to-day of agreements between the leading firms such as that between Armstrong-Siddeley and Hawker Aircraft by which the resulting company, the Hawker-Siddeley Co., represents the first big military aircraft merger.

The speculation which now marks the shares of the public aircraft companies is very similar to the speculation which took place in the shares of the heavy armaments firms in the great naval race which preceded the last war, and since it is obvious that a great expansion is about to take place in the British Air Force, a large amount of financing will be required in order to fulfil the contracts which will be placed. Thus the aircraft industry is, at this moment, entering a stage in an air armaments race with all the accompanying possibilities of financial exploitation by irresponsible and unsocial interests.

Competition is being unnecessarily sharpened by means of the interposition of the company promoter. Issues of shares have been made during the past six months based on an estimation of inflated profits, and by the utilisation of a favourable "Bull" market these shares have carried to substantial premiums.

The attention of the Commission is drawn to the recent issues of British Aircraft, General Aircraft, Airspeed, Phillips & Powys, and Parnall Aircraft as instances of the essentially undesirable state of affairs.

All aviation shares are standing at probably unjustifiable levels, the ramp is based upon the expectation of government fed demand and it is particularly appropriate that this moment should have been chosen for the appointment of a Royal Commission "to consider and report upon the practicability and desirability . . . of a prohibition of the private manufacture of and trade in arms and munitions of war and the institution of a State monopoly of such manufacture and trade."

With the memory of the part played by the heavy armaments industry in the armaments race of 1905-1914 it is the Commission's good fortune to prevent the profit motive from exploiting the present unhappy situation in international affairs.

The Work of the Royal Commission.

No member of the Commission can have any doubts as to the important influence which high finance has exerted in the sphere of international affairs. The inter-connections of high finance and the armaments industry have already been exposed, but this is the first time that the unholy triangle of politics, arms and finance has been brought into high relief. Whilst regretting the intense labour that would be caused, it must be pointed out that the Commission's labours would be largely useless unless it is prepared to investigate the implications, to the fullest degree, of international banking in its relation to armaments.

It is not necessary to suggest to the Royal Commission that they will need for this work the assistance of expert and trusted accountants since such investigations must go far beyond the books of the companies concerned and must include the examination of the innermost workings of a number of banks and finance houses. We would suggest that such action should be taken quickly in order to avoid the possibility of such firms, banks and finance houses hiding or removing from the country vital evidence. Already too long a warning has been given. It must be emphasised that since in the past the corrupting influences of the heavy armaments manufacturers have been far reaching, it is essential that the Commission should avail themselves of the services of independent accountants in the honesty and accuracy of whose work they, and the public at large, can be assured. Only on this basis can the adequate study of this problem which is so essential at the present time be undertaken by the Royal Commission.

* Figures 2A and 2B.

PART IV

The Armaments and Munitions Industry

INTRODUCTION.

The Union of Democratic Control has always fully realised and admitted the extent and the complexity of the problem of the private manufacture of and trade in arms.

It has made a detailed study of this problem and wishes to place the results before the Commission. For this reason, and believing that some such detailed information will be essential to the Royal Commission, it has prepared four chapters dealing with the industry:—

- (1) Chapter on the iron and steel industry in those aspects relative to the production of armaments.
- (2) Chapter on the heavy armaments industry.
- (3) Chapter on the chemical industry in those aspects relative to the production of explosives and poison gas.
- (4) Chapter on the aircraft industry.

CHAPTER I.

THE IRON AND STEEL INDUSTRY.

The Iron and Steel Industry, taken at the stage when iron passes into steel, is divisible vertically into different processes, distinct to the extent that a firm may engage in one process only.

In order of occurrence these stages are:—

1. Production of Pig Iron from Iron Ore;
2. Steel Melting;
3. Working of Steel;
4. Machining.

The only important exception to this order is concerned with Steel Foundry Work, when the steel is cast into a more or less finished state, and is only subjected in a minor degree to machining, for the removal of surplus metal, rough edges, etc., and the drilling of holes for assembly purposes. It is intended to show below that these processes are distinct from (a) a geographical point of view, and (b) a technical point of view.

(a) Geographical.

1. The principal areas for the production of pig iron are those situated near iron ore beds, the blast furnaces in many cases being situated at the mouth of the iron ore mines. These areas are Lincolnshire, Northamptonshire, Cleveland, Cumberland, Clyde Basin, South Wales, Derby and Notts., and the Black Country. Of these, Cumberland produces by far the best quality pig iron—haematite—a type essential for the production of high grade steel made by the acid open hearth process.

2. It is a peculiar feature of the British Iron and Steel Industry that the district producing the heaviest and best grade steel products—Sheffield—is not an iron producing centre. Whilst Sheffield itself is responsible for some 15 per cent. of British steel output, the counties of Lancashire and Yorkshire, omitting the Cleveland and Barrow areas, produce only about 6 per cent. of the pig iron. The highest quality steels of Sheffield depend upon haematite pig iron and iron ore, the products of Cumberland, Sweden and Spain, and Sheffield draws from the coast all its raw materials except fuel. The coal of South Yorkshire is very suitable for steel making, but apart from this Sheffield has no economic advantage in the production of high grade steels over the remainder of the country.

3. The usual procedure in the Steel Industry is for processes 2 and 3 to be combined in one works, but there are many exceptions to this rule, and a considerable sale of ingots is made between different firms. Moreover, the steel firms themselves may transport the ingots manufactured at one works to a works situated in another area for subsequent working there, but a much more important trade is done in the re-rolling of partly worked steel in

such districts as South Wales and the Cleveland area. Billets and bars of steel are imported and are rolled into smaller sections, either as bars or sheets. Sheffield also has a fair trade in re-rolling, the usual procedure being to buy the steel after it has been partly rolled in order to ensure that it is of sound quality, and that no returns will have to be made to the vendor.

An example of ingots being passed over to another company is instanced at Rotherham, where the firm of Steel, Peech and Tozer pass a substantial proportion of their ingots to a subsidiary company, Templeboro' Rolling Mills, who then roll the ingots down into wire. Therefore, although it is the custom for these two processes to be associated, it is by no means essential that they should be so.

4. Sheffield is not a self contained engineering centre, although it is responsible for the production of much high-class engineering steel. At one time it used to draw 80 per cent. of its machine tools from the Manchester area, and the tendency has been of recent years for a bigger proportion of steel to leave Sheffield for machining in other areas more renowned for their engineering skill or more suited for the assembly of finished parts. Many of the big motor companies draw their supplies from Sheffield, receiving the steel in a worked condition, and ready for final machining operations. The English Steel Corporation passes many forgings over to Vickers-Armstrongs in Newcastle for subsequent machining and sales of forgings are made to the Admiralty for machining at Woolwich Arsenal. On the other hand, Sheffield buys a certain amount of lower grade steel from other parts of the country, or even abroad, and either performs further formative work upon it or else completes the machining.

It will be seen that from the geographical point of view the steel industry is already divided into the stages referred to above, and there is no reason why this specialisation could not be carried further, if it were desired. On the other hand, certain firms combine all these operations in one works, but for the most part these are large firms engaged in the production of low-grade steels, and it is difficult to foresee an armaments firm large enough to make such an undertaking.

(b) Technical.

1. As a blast furnace must be kept in production when once fired, it is very few steel firms that are large enough to absorb the output of a single blast furnace, much less a group of furnaces, so one finds for the most part that only those steel firms producing structural steel and steel for ship-building purposes possess their own blast furnaces. The remaining blast furnaces sell their pig iron to the numerous steel companies who do not directly own their source of raw material. As the production of pig iron is so distinct from the steel operations, it is not proposed to discuss any technical details, but fuller remarks will be made upon the other processes.

2. Steel melting may be undertaken in a variety of ways, the cheapest method being to blow a blast of air through molten iron, but for good class steels the choice lies between melting by gas in an open hearth furnace, or by electricity, in an arc or in a high frequency furnace. For armament work the Government often specifies steel made in an acid open hearth furnace, and this is the type of furnace largely favoured by the big armament firms.

The other open hearth process—basic open hearth—is similar to the acid process as to equipment and methods, but it varies in its chemistry and a slightly inferior steel is turned out in a shorter melting time.

For the production of steel in an open hearth furnace—either acid or basic—raw material consisting of scrap steel, and pig iron is mechanically loaded in to the furnace and, by a combination of heat and chemical processes, is converted into steel. The type of steel required determines the materials

charged into the furnaces, better raw materials being used for high grade steels than for the usual commercial types. There is also a choice to be exercised in the proportion of scrap steel to pig iron, partly influenced by the relative market prices. The practices of different firms vary as their requirements, but the average is some 75 per cent. scrap and 25 per cent. pig iron. For the year 1892 the National Federation of Iron and Steel Manufacturers' Statistical Year Book gives the following figures for the production of open hearth acid steel.

	Tons.	Proportion.	Per cent.
Pig iron used ...	387,100	6.90 cwt.	30.5
Scrap used ...	823,000	14.66 "	65.0
Ferro - manganese used.	14,800	.26 "	1.1
Other materials (iron ore included).	42,600	.76 "	3.4
	1,267,500	22.58 "	100.0

Ingot and castings 1,122,800 20.00 cwt.

produced. Per cent.
Yield ... 88.6

A further net division relating to those firms producing 93 per cent. of the total acid steel production for that year is of interest.

Material consumed.	Tons.
Own Pig Iron ...	77,600
Bought Pig Iron ...	268,000
Own scrap ...	254,200
Bought scrap ...	473,300
Ferro-manganese ...	13,700
Other material (includes iron ore)	40,900
Total used ...	1,127,700
Total made ...	999,900

The manager of the steel melting department or a technical assistant predetermines the quantities and qualities of material to be charged, and issues instructions as to when various additions—if the steel is to be an alloy steel—shall be made. Various samples are taken during the "melt" to ascertain the percentages present of the different elements, and at the correct stage the additions or finishings are added. For example if a 34 per cent. nickel steel is being made and a small sample shows that there is a shortage of nickel, then further additions have to be made. A calculation would be made by the laboratory assistant as:—

	Lbs.
Weight charged ...	117,300
Nickel required ...	4,200
Nickel found (3.05 per cent.) ...	3,577
Raw nickel to be added ...	623

and the nickel would then be added. If the alloy is of a type that a large proportion of it would be lost if allowed to stay long in the bath of "boiling" metal, then it is added immediately, before the furnace is tapped (or drained) into the ladle, or thrown into the ladle itself. After the molten steel has been run into the ladle it is then poured into ingot moulds (as liquid jelly is poured into moulds), the size and shape of the mould again being determined by the destination of the steel. If the ingot is required by the armour plate department, then it may be 50 tons in weight, for the forge up to 200 tons, or for the rolling mill about 22 cwt. After the ingots have been cast they are allowed to cool in order to solidify and are then stripped from their moulds. A sample of molten steel is taken as it is being poured and if the chemical analysis proves satisfactory then the ingot passes on its way. A variation is allowed in the percentage present of the various elements, greater accuracy naturally being demanded for the high grade steels. For example a nickel chrome steel for a gun tube would have limits as Carbon .36 to .37 per cent.; Silicon .12 to .15 per cent.; Manganese .60 to .70 per cent.; Nickel 3.5 per cent.; Chrome .25 per cent.; and would be rejected as unsuitable if found outside these limits, whereas a

commercial steel would pass if say the carbon were .40 per cent.

It is seldom that an ingot is passed on to another department without being cooled to an almost atmospheric temperature. Occasionally the forge department will order an ingot to be sent round in a warm condition, say 500 degs. C. but the ingot stage can be taken as a definite break in the sequence of operations. The ingot can lie, and sometimes does, in the melting house stock yard for years without serious depreciation, but from the point of view of business efficiency it does not pay to allow stock to accumulate, become coated with rust, and involve clerical expenditure in keeping check of it. But the point to bear in mind is that the ingot is the finished product of one department (if need be, of a works) and is capable of being stored or of being transported round the globe. Sales of ingots are a regular feature of the steel trade; transfers of them between works a frequent occurrence, and it can be fairly claimed that the ingot represents the second stage of steel manufacture from the technical point of view.

NOTE.—Steel melting by electricity is undertaken on much the same lines as above, the average cast being, however, about 5 tons, as against 50 in the open hearth furnace. Electric steel from an arc furnace, owing to cleaner methods and the close control of a small quantity of steel, is the best steel obtainable, but is not used for big guns or armour-plate work, as the ingots made are too small. Electric furnaces are used for the production of steel for aeroplane parts and various ordnance fittings, shells, bullet proof plates, etc., which have a much smaller bulk. They are used, therefore, for making special steels which are handled in small quantities only, or employed in works whose capacity is too small to absorb the output of a Siemens open hearth furnace.

3. The working of steel covers those operations during which steel passes from the ingot state into a rough resemblance to the finished product, or to a part of the finished product. These operations include forging—by hammer or press—rolling, pressing, stamping, and extruding. The operations of forging and rolling are the primary operations, and with few exceptions all ingots must go through them first. The exceptions are chiefly concerned with ingots for tyres and for hollow forgings, such as guns or boiler drums. A tyre ingot is "sliced" or cut into five or six pieces before going to the hammer; a gun ingot may be trepanned (bored through the centre) before proceeding to the press. Or it may be that the customer wishes for certain parts of the ingot to be cut off to ensure soundness—the Admiralty requires as much as 40 per cent, or even more to be discarded—and this is done before forging or rolling if the order requires it to be so. Rolling and forging require great power: an average size of rolling mill will have a motor drive of well over 1,000 h.p., whilst a press may exert a pressure of anything up to 10,000 tons. Forging by hammer is a much lighter process, for the press has ousted the hammer in all the bigger operations and it is seldom that hammers of more than 7 or 8 tons are used in heavy steel firms.

As the processes vary so much with the different products, it is not intended to give a comprehensive survey here, but actual operations on certain armament products will be given later. At the moment a general indication of the processes through which a stamping passes is given:—

- Ingot goes to rolling mill;
- Heated up to about 1,150 degs. C;
- Passed and repressed through rolling mill until it is reduced in thickness from some 11 inches square to 3 inches square and is cut off by press or circular saw to required length;
- Cooled and examined;
- Sent to stamping department;
- Reheated and stamped;
- Perhaps another stamping operation;
- Heat treated, giving hardness, temper or condition required;
- "Fettled" or cleaned up;
- Straightened and examined;
- Despatched.

4. This despatch clears out the product from the steel working departments to the machine shops, either belonging to the steel firm or more usually to its customers. Hundreds of thousands of stampings and pressings are despatched from Sheffield for machining in the automobile factories. E.S.C. sends forgings to all the Vickers' works for finish machining, or forgings to Woolwich Arsenal, stainless steel sheets to Firth-Vickers Stainless Steel Co. (previously to outside firms for polishing), steel strips to its own file works across Sheffield, or rolled bars to its tool works at Openshaw in Manchester. Firth-Brown sends gun forgings to the Admiralty, or shell steel rolled in bars; Jessop supplies steel products to its parent company, B.S.A. Ltd., or to its file making concern J. J. Saville & Co.; Hadfield sends its shells from one works to another for machining; whilst Industrial Steels (E.S.C. subsidiary) sells almost all its steel in a bar or billet condition. Thus it is shown that there is yet another water-tight division in the production of steel, this time between worked steel and machining. It is hoped to bring out the importance of these independent operations subsequently.

Production of Armaments.

It has already been demonstrated that the manufacture of steel products can be divided into stages such that a factory could undertake one operation only. It is now intended to show that in addition to a vertical division of manufacturing there is a horizontal one between commercial and armament steels.

So far as pig iron production is concerned the same blast furnaces provide raw materials for both armament and high grade engineering steels, but pig iron for the former is subjected to very careful scrutiny and only the very best qualities are used. A fair importation of Swedish pig iron is made for armaments on account of its purity, a very small percentage of sulphur and phosphorus—weakening elements in steel—being an essential. The other raw materials are closely examined also, as well as the coal used for gas production to eliminate the possibility of an increase in the proportion of sulphur or the introduction of some undesirable element.

The use of alloy steels which, prior to 1910, was confined mostly to guns, armour plating and projectiles, has spread rapidly of recent years into all metal working industries among which the motor industry leads. Prior to that date the majority of high grade engineering firms were very pleased to be able to buy pieces of scrap steel cut off from ordnance work, but demand became so great for the nickel alloy steels that steel manufacturers set out to cater for it. There are infinite possibilities in alloying, but the analyses are to a certain extent checked in number in order to prevent multiplicity of stocks and—an immense bugbear in all steel firms—the mixing of scrap. The most important steels are those containing nickel and chrome, used for crankshafts, gears, valves, axles, ordnances, etc., etc. A popular nickel steel contains about 3½ per cent. nickel and .10 to .50 per cent. carbon and is used in many motor products.

Nickel is the principal alloy added to steel and increases its mechanical properties. Together with chromium it gives the steel great hardness and toughness without a corresponding increase in brittleness. Corrosion resistance is also increased and as both elements depress the temperature at which hardening of steel takes place a wider range of treatment is possible than with carbon steel. For example a steel can be quenched in oil as against plunging into cold water. The results may be the same but there is much less danger of cracking.

Nearly all guns are of nickel chrome molybdenum steel. Molybdenum increases the toughness of steel and also increases the depth of hardness. Another important alloying element is manganese which makes the steel non-warping, non-shrinking, oil hardening at low temperature, and little liable to crack in hardening. An average composition for

armour plate is Carbon .35 to .50 per cent., Nickel 3.5 to 4.0 per cent., Chrome 1.5 to 2.5 per cent., Manganese .4 per cent., Silicon .15 per cent.

As nickel itself costs some £200 per ton it will be appreciated that there is a distinct cleavage between the prices of straight commercial steels and of armament steels. A furnace charged with nickel scrap and pigiron, intended for the production of arms, is directed to that end, and it is seldom diverted to another purpose. The quantity of steel poured from a furnace, in order to err on the safe side, is generally a little bigger than the amount required to fulfil the works order, so the extra ton or so is poured into small ingot moulds. From there it may pass to other armament consumption, or be used in an appropriate commercial transaction (giving very good value for money) or it may be sent back to the furnace for remelting in the next nickel chrome cast. The point is that, although melted in the same furnace as commercial steels, armament steels are earmarked from the start and only a small proportion is sidetracked. But it should be borne in mind that an increasing number of commercial purposes are being found for those alloy steels formerly used for armaments only. In other words "What makes good arms makes better ploughshares."

It is after the ingot stage that arms steel commences to assume its more formidable aspect, and whereas it was distinguished in the furnace by a greater amount of care being spent upon it, it now passes through certain operations which definitely separate it from the commercial steels.

The ingots required for heavy armaments may need a heat treatment process or certain machining operations but they invariably pass to the forge department where in a hydraulic press of great strength they are altered in shape. A brief description is given of the operations certain products pass through.

Armour plate.

Notes.

- | | |
|---|---|
| 1. Ingot ... | — |
| 2. Slab in press ... | A reduction in section. |
| 3. Heat and roll to finished thickness. | Plus allowance for machining and fire waste. |
| 4. Anneal ... | Steel has certain properties derived from its physical condition. The arrangement of the iron, carbon and other molecules determines its hardness, softness, temper, etc., and heat treatment at different temperatures gives the desired effect. |
| 5. Cool and straighten. | Straighten in hydraulic press. |
| 6. Carburize ... | The plates are placed in a furnace in pairs, separated by a layer of charcoal. This charcoal (carbon) enters the steel and gives it a very hard surface. Takes two to three weeks. |
| 7. Treatment ... | Plunging in oil or water after heating to give tensile strength. |
| 8. Drill holes and machine. | Done in planing shops. |
| 9. Differential heat treatment for hardening. | Face at high temperature, back comparatively low. |
| 10. Cool rapidly by water. | Water at high pressure is sprinkled simultaneously on face and back. |
| 11. Mark out and have trial assembly. | — |

No. 6 operation is known as cementation. Non-cemented armour is used for deck plates, the principal feature being great strength and the capability of suffering considerable deformation without rupture.

Guns.

Big naval and military guns consist of an "inner A tube" (replaceable), an "A tube", a "B tube", a jacket, a breach block, and sundry fittings. They are built up in this tubular fashion to ensure greater strength, a certain soundness, and a greater elasticity to shock. British specifications always require acid open hearth steel. An ingot may be 100 tons to commence with and perhaps 10 per cent. is discarded from the bottom and 30 per cent. from the top of it.

1. Ingot.
2. Cut off discard.
3. Trepan—hole bored through centre.
4. Forge on water cooled mandril—mandril is a bar passed through hole in centre to prevent closing.
5. Straighten.
6. Rough machine.
7. Normalize—a heat treatment.
8. Oil harden—a heat treatment.
9. Temper—a heat treatment.
10. Finish outside.

These operations are common to the 3 tubes and jacket. Thereafter:—

11. Keep inner A tube cool in pit by water, heat A tube by gas to expand it, lower on inner A and cool by water to contract it.
12. Fit B tube, then jacket as per operation 11.
13. Breech ring is screwed and shrunk on.
14. Finish machine. Bore and chamber are bored and lapped to size.
15. Rifle. To give a twisting action to the projectile.

Shells.

(Not heavy armament product, and misses the forging operation.)

1. Ingot.
2. Roll in 28 inches blooming mill to 8 to 9 inches diameter.
3. Cut to required length.
4. Machine.
5. Heat treated.
6. Despatch for filling.

Hadfield's armour piercing shells are forged in a horizontal press, then are bored, turned, finished, fitted with a soft nose, and despatched.

A list is next given of the various departments in English Steel Corporation connected with armament manufacture. With reference to armour plate, it may be noted that after the second operation given in the foregoing list, practically all the work is performed in armament departments, the exceptions being operations 6 and 9 which are done in the carbonizing department—about 50 per cent. armament.

Guns are seldom finished at E.S.C. now, the usual procedure being to send the parts after operation No. 9 to the Vickers-Armstrongs works at Elswick, where there are two gunshops, and the armament work is kept apart from the commercial. Whilst it is true that the lathes, boring machines, etc., can be used for commercial work, the two do not economically mix. When the gun work departed from the heavy machine shop at E.S.C., the lathes were used for the machining of boiler drums, catalysers, cranks and rollers, but it was found that they were far too slow to be a commercial proposition. A commercial production does not need anything like the finish of an arms product, and to compete on favourable terms with other manufacturers E.S.C. had to buy many new lathes that fairly ripped off the steel, whilst leaving a finish good enough for commerce, but hopeless from an ordnance point of view. Many of the older machines were despatched to Elswick and Vickers-Armstrongs still holds the option to purchase the original heavy machines remaining in the South Gun Shop at Sheffield.

ENGLISH STEEL CORPORATION, LTD.

Departments exclusively engaged in the manufacture of armaments or overwhelmingly so.

*River Don Works, Sheffield.**Process.*

Armour plate mill ...	Rolling armour plate.
8,000 tons press... ..	Cutting armour plate.
Treatment furnaces at 8,000 tons press. ...	Heat treating armour plate.
40 inch D.C. press ...	Straightening armour plate.
North and south planing shops.	Machining armour plate.
Machines for armour plate tests.	Testing armour plate.
3,000 tons press... ..	Straightening armour plate.
Vertical bending rolls ...	Bending bullet proof plates.
Sealing plant	Removing fire scale from armour plate.
Gun building plant ...	Heat treating guns and shrinking on tubes.
Gun building plant, annealing and tempering.	Heat treating guns.
2,500 tons press... ..	Straightening guns.
Machine shop (test cutting).	Cutting test pieces from gun forgings.
Oil hardening plant ...	Treating bullet proof plates.
Bullet proof machine shop.	Machining bullet proof plates.
Firing range in works and at Totley.	Testing bullet proof plates under fire of rifle and machine gun.

Grimesthorpe Works, Sheffield.

Armour plate mill ...	Rolling armour plate.
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Cyclops Works, Sheffield

Three hydraulic presses	Straightening and cutting armour plate.
Treatment furnaces ...	Heat treating armour plate.
Planing shops	Machining armour plate.
Oxy-acetylene cutting department.	Cutting out shapes in armour plate.
Bullet proof treatment furnaces.	Heat treating bullet proof plates.

Note.—Cyclops Works was used by Cammell Laird for the production of armour plate, being the site of all operations thereon after the ingot was rolled in the Plate Mill at Grimesthorpe—about $\frac{1}{4}$ mile away. It is exclusively laid out for the production of armaments and was closed on the formation of the E.S.C. in 1923, manufacture being concentrated at the River Don Works. In the spring of last year—it was opened out for cleaning, overhauling, and preparing for manufacture on the granting of a sum of £5,000 from the Government to E.S.C. It is now maintained in working condition by a Government grant of £1,000 per annum.

Departments considerably engaged in the manufacture of armaments.

*River Don Works.**Process.*

Oxy-acetylene department.	Shaping armour plates.
Carburizing department	Heat treating armour plates and sundry forgings.
Sheet rolling mill ...	Rolling bullet proof plates.

Grimesthorpe Works.

Heat treatment department.	Treatment of armour plates and gun forgings (almost dormant since 1929).
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Departments partly engaged.

<i>River Don Works.</i>		<i>Process.</i>
Melting departments ...		Production of open hearth and electric steel, about 20 per cent. for armaments.
Forge		Slabbing of ingots for armour plate mill, and forging guns.
Machine shops ...		Machining guns, aero cranks, armour plate fittings, ship's shafting, etc.
Stamping departments...		Stamping out aero cranks, crank cases, connecting rods, etc., etc.
Rolling mills		Reducing ingots to smaller sections for further work.

Grimesthorpe Works.

Melting departments ...	{	Not much production in these departments now as policy of concentration in River Don Works has been pursued.
Forge		
Foundry		

Service Departments.

All the above departments require services such as hydraulic and pneumatic power, gas, water, electricity and steam. In the case of the departments exclusively armament they are almost self-contained except for electricity (Cyclops is a self-contained works even to a transforming station), therefore no appreciable increase in the cost of services would be made on a withdrawal of armament work. With the other departments the manufacture of armaments is only a small proportion of the total output so there again no considerable increase in the overhead costs would take place.

CHAPTER 2.

THE HEAVY ARMAMENTS INDUSTRY.

Armour plate and steel for heavy ordnance is manufactured by three firms only. These are the English Steel Corporation, William Beardmore & Co. and Thomas Firth & John Brown. The English Steel Corporation is owned by Cammell Laird and by Vickers-Armstrongs. Vickers-Armstrongs in its turn is owned by Vickers and Armstrong Whitworth Securities. Vickers has, however, the largest holdings in Vickers-Armstrongs and therefore controls it. The holdings of Vickers-Armstrongs in the English Steel Corporation are much larger than those of Cammell Laird and therefore Vickers-Armstrongs controls the English Steel Corporation. Thus, despite the participation of other firms, Vickers in fact controls the English Steel Corporation, which is the largest producer of armour plate and steel for heavy ordnance. William Beardmore & Co. is controlled by the Trustees for the Debenture Holders and the Preference Shareholders. Vickers has a very large holding of Second Preference shares. One of the Vickers directors is one of the three members of the Debenture Holders' Committee which controls the company. Therefore, it is correct to say that Beardmore is closely linked with Vickers, even if it is not actually controlled by them.

Thomas Firth and John Brown is a subsidiary of John Brown & Co., and is connected with the English Steel Corporation by the amalgamation of the Firth Brown and the English Steel Corporation stainless steel interests. The English Steel Corporation and Firth Brown divide equally between them the capital of the Firth Vickers Stainless Steel Co.

Shells and armoured turrets are manufactured mainly by Hadfield. Vickers and Firth Brown do make a certain number of shells but by far the most important shell firm is Hadfield.

All these heavy steel firms are closely bound together. They combine to obtain raw material. First a special type of iron ore free from sulphur and phosphorus is essential. A plentiful supply of hematite iron ore, the most suitable type of ore

for armament and high grade steel work, is in great demand. Therefore the armament firms combine to form companies which can supply them with this essential raw material. The Carnforth Haematite Iron Co. (now wound up) was a good example of this. It was controlled by the Darlington Forge which was at that time controlled by the Broadway Finance and Investment Trust and the Glyn Nominees (the one, a subsidiary of, and the other a nominee of, Vickers) and by John Brown. It is interesting to note that the British and Allied Investment Corporation, in which the Czechoslovakian armament firm of Skoda has large investments, was also a large shareholder in the Carnforth Haematite Iron Co.

The supplies of haematite iron in England are becoming exhausted and therefore the armament firms draw their supplies from abroad, particularly from Sweden and from Spain. No doubt there are in Spain and Sweden similar companies to the Carnforth Haematite Iron Co. but owing to the fact that they are abroad it is very difficult to trace them.

The arms firms also combine in the control and production of other essential raw materials. For example, fire bricks for furnaces. The Oughtibridge Silica and Fire Brick Co. was founded by six firms, five of which were armament concerns. The control is now largely in the hands of the English Steel Corporation who hold out of the 177,800 shares some 19,500 in the name of Vickers and another 19,500 in the name of Cammell Laird. The interests of the English Steel Corporation, through Vickers, in the Parkgate Iron and Steel Co., give them another 19,500 shares. Among the other shareholders are Hadfield with 19,500 and John Brown with 16,700 and Thomas Firth and John Brown (controlled by John Brown) with 22,300.

In the same way as the English Steel Corporation and the other armament firms control jointly their supplies of haematite iron and firebricks, so they control the ingredients for electrical furnaces used for melting small ingots. The Electrode Company of Sheffield (now in course of reorganisation) was controlled by Thomas Firth and John Brown and the English Steel Corporation who held between them some 46,000 of the 70,000 shares of the company. Hadfield comes in with another 9,000 shares.

But even more important from the armament makers' point of view is the control of the non-ferrous metals essential for hardening steel. Of these the most important is nickel. Other essential non-ferrous metals include molybdenum, chrome and manganese. The principal firms which supply these essential ingredients are High Speed Steel Alloys and the High Speed Steel Alloys Mining Co. Figure 3 shows the connections of High Speed Steel Alloys with the main armament firms. The largest shareholders are the various firms in the Vickers group but John Brown and Thos. Firth & John Brown participate heavily as do Hadfield and the other armament firms. It should be noted that Vickers has also large interests in the French Nickel Group, the S.A. le Nickel, but again since this is a foreign company it is impossible to discover whether the other armament firms participate and to what extent.

To sum up, it will be seen that the firms which produce armament steel, and particularly Hadfield, the English Steel Corporation and Firth Brown, all of which are now larger and more important than Beardmore, the other firm in the group, are very closely linked together through common supplies of raw materials. Secondly that the English Steel Corporation, Beardmore and Firth Brown are connected, either through the one holding debentures or shares in the other or else by sharing together the control of important subsidiary companies. It is quite evident by studying the financial link-ups between the heavy armament steel firms that there exists in fact an armament steel ring.

Heavy Ordnance.

The same firms which control the armament steel business have the monopoly of the private manufacture of heavy ordnance. All heavy guns are

made by William Beardmore, Vickers-Armstrongs or John Brown & Co. As has been shown Vickers-Armstrongs and William Beardmore are closely connected and the association between John Brown and Vickers is very close.

Small Arms.

Small arms are manufactured by Vickers and by the Birmingham Small Arms Co. In this connection, however, it is worth while noting the position of the Hotchkiss Co., a French concern manufacturing motors and small arms, which has a London office and does a certain amount of business over here. Vickers has already been dealt with. The Birmingham Small Arms Co. is not, as its name suggests, exclusively an armaments concern. It has important outside interests. Through the B.S.A. control of J. J. Saville & Co. and William Jessop & Sons, B.S.A. participates in High Speed Steel Alloys and is thus connected with Vickers and the other armament firms in the armour plate group. B.S.A. also controls the Daimler Co., Ltd., and the Lancaster Motor Co., Ltd., and through B.S.A. Cycles Ltd. it enters the bicycle industry. Other industries of B.S.A. include the manufacture of tools and of machinery for grinding.

Also belonging to the small arms group is the Projectile & Engineering Company which makes smaller shells. This Company is closely associated through the Firth family, who are the largest shareholders in the Projectile & Engineering Company, with Thos. Firth & John Brown. Until 1930 the Projectile & Engineering Co. was almost solely an armament concern, but since that date it has made motor car frames and crank cases.

There are many firms which manufacture sporting rifles and revolvers. It is worth noticing in this connection The London Armory Company, the majority of whose shares are held by the managing director, a former German, now an American citizen. The body which acts politically for this class of small arms makers, is the Gunmakers' Association.

Tanks.

Vickers-Armstrongs is believed to be the only important firm which manufactures tanks.

Warships.

The construction of warships is not restricted anything like so closely as is the construction of armour plate and ordnance. Firms contracting for the Admiralty may be divided roughly into three classes, those which build both engines and hulls of any size; those which specialise in engine construction and those which confine themselves to lighter and smaller craft. In the first class the most important firms are:

Vickers-Armstrongs.
John Brown & Co.
Scott's Shipbuilding & Engineering Co.
Swan Hunter & Wigham Richardson.
The Fairfield Shipbuilding Co.
Cammell Laird.

There are other firms which on occasion build heavy warships. Holland & Wolff, for example, is at present building the cruiser "Penelope." R. & W. Hawthorn Leslie occasionally builds large ships for the Admiralty. But the firms given above can be taken to be the principal builders of warships of all kinds.

Vickers and Cammell Laird are closely associated; as has already been noticed the armament and high speed steel interests of Vickers and of Cammell Laird are combined in the English Steel Corporation. Their other steel and iron interests are combined in the Metropolitan Cammell Carriage & Wagon Co., Ltd., which is controlled by Vickers-Armstrongs and Cammell Laird.

All these firms are members of the Shipbuilders Security Co., a company formed to reduce the number of shipyards. Vickers-Armstrongs, the Fairfield Shipbuilding Co. and John Brown & Co., also control jointly the Michell Bearings Co., which was formed originally to exploit patents which were used exclusively for warships but these patents are now

used very widely in ordinary vessels. Except for these two companies there is no financial link between the Vickers-Armstrongs, Cammell Laird, John Brown group which is bound together by its interlocking steel, iron and raw material interests and the other shipbuilding armament firms.

Scott's Shipbuilding & Engineering Co. is, next to Vickers, perhaps the most important of the naval armaments firms. At the present moment the entire construction in the Scott shipyards consists of Admiralty orders. Scott is at present constructing two cruisers, one submarine and two destroyers. Scott's Shipbuilding & Engineering Co. formed in 1899 is a private company registered in Scotland. The capital consists of 2,500 preference shares and 27,500 ordinary shares of £10 each. The majority of the shares are held by the Scott family but some 9,000 are held by the Ocean Steamship Co. and the China Mutual Steamship Co.

The Fairfield Shipbuilding Co. is building two destroyers and one depot ship. This company is controlled by the Shipbuilders Investment Co. An examination of the shareholdings of the Shipbuilders Investment Co. shows that the controlling blocks of shares are in the hands of various individuals described in the returns as Esquires. On investigation these gentlemen appear to be clerks and officials in the employ of Kleinwort, the well-known private banking company which has important German and continental connections.

Swan Hunter & Wigham Richardson is at present building a cruiser for the Australian Navy and two destroyers for the Admiralty. Swan Hunter & Wigham Richardson, as shown in Figure 4, is connected through the Glasgow Iron & Steel Co. with Beardmore. Like Vickers it has branched out into other aspects of the armament industry. Recently Swan Hunter formed, in collaboration with Fokker, a new aircraft firm, Air Speed Ltd. Swan Hunter also controls the Wallsend Shipway & Engineering Co. which is one of the three engineering firms which build marine engines for the Admiralty.

This leaves still to be considered Vickers-Armstrongs, John Brown & Co. and Cammell Laird. Vickers-Armstrongs is at present building at the Barrow yards four destroyers and two submarines for the Admiralty and two submarines for the Esthonian Government. At the Newcastle dockyards it is constructing the hulls of two destroyers and of two 9,000 ton cruisers for the Admiralty. Cammell Laird is building at Birkenhead the new aircraft carrier "Royal Oak," a flotilla leader and one submarine all for the Admiralty. John Brown & Co. is building at Clydebank one 9,000 ton cruiser and one destroyer.

All these firms, however, are not only naval armament shipbuilding firms but also ordnance makers, armour plate manufacturers and general armament merchants. For this reason it is better to leave consideration of them until later.

Marine Engineering.

There are three firms which, though they do not build any warships, do benefit largely from the construction of engines for them. These firms are William Beardmore & Co., Parsons Marine Steam Turbine Co., and the Wallsend Shipway and Engineering Co.

As previously noticed the Wallsend Shipway is owned by Swan Hunter. Last year it only obtained some £120,000 worth of naval orders, as compared with £220,000 of orders for machinery obtained by Beardmore. Wallsend Shipway is the least important of the marine engineering firms.

Beardmore, as already noted, is closely connected to Vickers. It would seem that it is also related to Swan Hunter through the Glasgow Coal & Iron Co. A number of the directors of Beardmore are also directors of the Glasgow Coal & Iron Co., one-half of whose capital is held by Swan Hunter. It should be noticed that the Law Debenture Corporation acts as Trustee for the Debenture Holders of both Beardmore and Cammell Laird, thus making another link between the Vickers group and Beardmore.

Parsons Marine Steam Turbine is owned by members of the Parsons family but it is also closely linked with the Vickers group. Sir Eustace Tennyson d'Eyncourt, a director of Parsons, is also a technical adviser to Vickers-Armstrongs. The Spanish Parsons, which exploits Parsons patents in Spain, is controlled jointly by Parsons Marine Steam Turbine, its subsidiary, Parsons Foreign Patents, by Vickers-Armstrongs and by John Brown. It appears that Parsons works in close connection with Vickers.

Belonging to this class of marine engineers is the boiler making firm of Babcock & Wilcox. Babcock and Wilcox makes boilers of every description for every purpose, but it is also an important armament firm in the sense that a proportion of its work consists of building boilers for warships. It is a truly international firm. There is a German Babcock & Wilcox, a French Babcock & Wilcox, a Dutch Babcock & Wilcox, a Spanish Babcock & Wilcox, an Italian Babcock & Wilcox and a Canadian Babcock & Wilcox. In addition, it has a Japanese subsidiary and owns 49 per cent. of the capital of the largest Polish boiler works. Babcock & Wilcox also owns the Vickers Boiler Co. and other boiler works in England. A study of *Jane* shows that a large proportion of the fleets of every nation is equipped with Babcock & Wilcox boilers.

Babcock & Wilcox is linked to the Vickers group in two ways. Until recently Colonel Philip Ionides, deputy chairman of Armstrong Whitworth Securities, sat on the Babcock & Wilcox board and was, in fact, chairman of the Spanish Babcock & Wilcox. Babcock & Wilcox participates in Dorman Long & Associates (China) in which Associated Electric Industries (in which Vickers have large holdings) also participates. Recently the English Electric, which is closely associated with John Brown & Co., has taken a contract together with Dorman Long & Associates (China) and has thus become for practical purposes a member of the Dorman Long China syndicate.

Smaller Naval firms.

Under this head are described those firms which specialise in the construction of destroyers, gun boats and sloops. The most important firms in this class are John I. Thornycroft & Co., of Southampton, Alec. Stephens & Sons, of the Clyde, Yarrow & Co. and J. Samuel White & Co., of Cowes. At present Alec. Stephens & Sons is building two destroyers and two sloops for the Admiralty. The only other work it has on hand is one 1,000-ton cargo vessel, so that at present it is practically maintained by its armament work. This company (registered in Scotland) is controlled by the P. & O. Steamship Co. which holds 76,193 preference shares out of a total of 128,449, and 102,000 ordinary shares out of a total of 200,000.

The method by which the P. & O. has exercised this control is typical of the way in which the control of armament (and other) firms is switched about among nominees. Since 1929 the holding of the P. & O. has been registered successively in the names of the Eastern Traders Ltd., Hong Kong, Edward Hain & Son Ltd., Mackie & Co., Eastern Traders Ltd., and in 1934 back again to Edward Hain & Son Ltd.

Thornycroft is at present building two destroyers and four motor pinnaces for the Admiralty. Its only other shipbuilding consists of a small motor tug. This, however, does not mean that Thornycroft is practically exclusively an armament firm because it has in addition to its shipbuilding works important motor interests and does a good deal of marine engineering as apart from shipbuilding. Its other interests include building trolley buses and motor boats.

Thornycroft has, like Babcock & Wilcox, a number of foreign firms—Thornycroft Australia, Thornycroft India, Thornycroft Brazil, Thornycroft Singapore, Thornycroft Egypt, Thornycroft

Argentina. Thornycroft is one of the firms which participate in Dorman Long & Associates (China). J. Maughling, director and secretary of Thornycroft, is also a director of Dorman Long & Co. (China). Through its investments in Dorman Long & Associates and its interlocking directorate with this firm, Thornycroft is linked with Babcock & Wilcox and indirectly through Associated Electrical Industries, with Vickers.

Yarrow & Co. is at present building a flotilla leader and a net layer for the Admiralty. The only other shipbuilding work which it has at present on hand is a small yacht. Like Thornycroft, however, Yarrow is not exclusively a shipbuilding firm. It manufactures also marine engines and it is well known for its Yarrow boilers. It has two foreign subsidiaries, one in Canada, the other in Yugoslavia. In the latter a great deal of armament construction for the Yugoslav Government is done. Yarrow boilers are also widely used in foreign warships. Also large numbers of foreign warships are built in foreign dockyards to Yarrow designs. Recently the firm has provided boilers for the Japanese, Italian and Dutch navies, and the Dutch Government has built eight destroyers from Yarrow designs and under Yarrow supervision in its own dockyards. In the same way Yarrow has recently fitted out two Portuguese destroyers of which the hulls were built in Portugal. Yarrow & Co. is owned by the Yarrow family. Yarrow is probably the most important of the smaller naval shipbuilding firms.

J. Samuel White of Cowes is the oldest of all the armament firms. At present it is building two mine-sweeping sloops for the Admiralty and two large destroyers for the Polish Government. Its other shipbuilding work consists of two yachts and three lifeboats. Like Yarrow, J. S. White also builds machinery and boilers and it does quite an important business in engineering the smaller warships built in government dockyards. In the past J. S. White has made great efforts to obtain foreign armament orders and is for that reason important. Like Yarrow, warships to its design, are built abroad under licence from it.

Other Naval firms.

There remain to be considered one or two other firms which do constructional work for the Admiralty but whose naval shipbuilding is small in comparison with the ordinary work which they undertake. Harland & Wolff, to which already reference has been made, is typical of this class of firm. Harland & Wolff is registered in Belfast where its principal yards are situated, but it also has yards on the Clyde and at North Woolwich. It controls through David Colville & Co. the steel interests of the great Scottish firm of Colville, and through it controlling interests in large collieries in Lanarkshire and Stirlingshire. The Belfast yard of Harland & Wolff is the largest single yard in the country.

The control of the company was originally associated with the Royal Mail Steam Packet Company and the Elder Dempster Co. Ltd.

Harland & Wolff, therefore, is almost the greatest shipbuilding company in the British Isles. It is, it is true, building one cruiser for the Admiralty, but its armament work is practically negligible compared to its other interests.

William Denny & Bros., of the Clyde also, like Harland & Wolff, is at the moment mainly engaged in civil trade, but it is building two destroyers and a survey ship for the Admiralty. This company, registered in Scotland, capital £500,000, is controlled by the Denny family.

William Hamilton & Co., of the Clyde, does a little armament work. It is at present building one sloop for the Admiralty. This is a private company registered in Scotland with a capital of £170,000. It is controlled by the Cunard Company.

R. & W. Hawthorn Leslie & Co., Hepburn-on-Tyne, a very old shipbuilding firm, originally established in 1817, has done a certain amount of naval construction but at present it is not building

any ships for the Admiralty. This company has also important interests in building locomotives, patent locomotive trains, petrol and electric locomotives and rail motor coaches. The issued capital consists of £358,000.

William Doxford & Sons, Sunderland, has also done in the past a certain amount of naval shipbuilding. This company is now controlled by the Shipbuilders Investment Company, which also controls the Fairfield Shipbuilding Co., and is itself controlled, through nominees, by the British and foreign banking house of Kleinwort.

Palmers Shipbuilding & Iron Co. was at one time an important naval shipbuilding firm. Recently it has not done any construction for the Admiralty, and early this year the entire ordinary capital was acquired by Vickers-Armstrong's.

J. Stone & Sons should perhaps be mentioned as one of the principal suppliers of propellers for naval ships and the Yorkshire Tube Co. should be noted as sometimes supplying boilers.

Vickers-Armstrong's, Beardmore, Cammell Laird, John Brown Group.

Though the interconnection of the steel interests of this group has been dealt with in some detail, close examination of these firms has been postponed until the conclusion of this survey of the armament firms.

It will be seen that this group includes all the makers of armament steel with the exception of Hadfield and Hadfield only makes shells, bombs and castings for gun turrets, etc. Hadfield is, moreover, closely connected through its steel interests with the Vickers-John Brown group. This group also includes most of the important naval shipbuilding firms. It includes all the makers of heavy ordnance and of torpedoes and warlike accessories for ships of war. It is important to note also that this group extends into the aircraft industry, Vickers having subsidiary companies of Vickers Aviation and the Supermarine Aviation, Armstrong Whitworth sharing in the control of the Armstrong Siddeley Development Co. which controls Armstrong Siddeley Motors, Sir W. G. Armstrong Whitworth Aircraft, A. V. Roe and Air Service Trading.

With the exception of two of the aircraft firms, Babcock & Wilcox, Yarrow, and Thornycroft, this group of armament firms are the only British armament firms to have important foreign armament interests.

Vickers and Armstrong Whitworth Securities are very closely linked together. Armstrong Whitworth Securities has certain civil interests represented by Craven Bros. Armstrong Construction, etc., but one of its main interests is its investment in Vickers-Armstrong's, the main armament manufacturing company in England. The undertakings of Vickers-Armstrong's can again be subdivided into civil and military interests. Through the Securities Management Trust, Vickers-Armstrong's together with Armstrong Whitworth Securities control the Lancashire Steel Corporation which, in its turn, controls a number of iron and coal companies. These undertakings can all be regarded as purely civil. Vickers-Armstrong's also, in its shipyard and engineering shops undertakes a certain amount of civil shipbuilding and engineering. At present Vickers-Armstrong's is building at Barrow two passenger steamers of 24,000 tons gross and a turbine steamer of 15,000 tons gross. The main interests however of the Vickers-Armstrong's group are in armaments. It controls the Thames Ammunition Works, which is said by the Vickers directors to be mainly engaged on the manufacture of civil explosives, but which does no doubt produce armaments, and the Whitehead Torpedo Co.

Abroad Vickers-Armstrong's owns Vickers (Ireland) whose interests are mainly civil, and the Placencia de las Armas in Spain which is an armament firm pure and simple, manufacturing ordnance and small arms. It is interesting to note that Sir Basil Zaharoff is a director of this firm.

Vickers-Armstrong's has also innumerable investments in civil and arms firms abroad. The most important of these are its investments in Resitza,

the Roumanian armaments works; its participation in the Japanese steel works, part of the great Mitsui concern the chief armament factory of Japan; its interest in the Italian armament works Vickers-Terni (believed to be about 25 per cent.) and its interests in the Spanish Sociedad de Construcción Navale. This latter company is the greatest naval shipbuilding enterprise in Spain. As was shown at the American Arms Inquiry it is closely linked by agreements and trading arrangements with the Electric Boat Company whose European licensees are Vickers-Armstrong's. Commander Sir Charles Craven sits on the board of the Sociedad as deputy chairman.

The English Steel Corporation, which manufactures Vickers' armament steel is controlled by Vickers but Cammell Laird participates in the share capital of this concern. Though an armament firm, Cammell Laird has now no steel works of its own, all of its former armour plate and armament works having been transferred to the English Steel Corporation. The link between Vickers-Armstrong's and Cammell Laird is made stronger by the amalgamation of their iron and coal and railway wagon and rail businesses in the Metropolitan Cammell Carriage and Wagon Co. (recently reorganised) which is controlled by Vickers-Armstrong's with participation in the management by Cammell Laird.

Thus Armstrong Whitworth Securities, Vickers Ltd. and Cammell Laird are all very closely bound together. However, it should be noted that Vickers-Armstrong's and Cammell Laird, though amalgamated for the purpose of producing armour plate, and armament steels, are in theory independent and competing naval shipbuilders and that Vickers and Armstrong Whitworth Securities, though they are amalgamated for the greater part of their armament activity, are nevertheless, competitors in so far as the aircraft industry is concerned.

Vickers as distinct from Vickers-Armstrong's, controls a number of companies. Among these should be noted Vickers Aviation which in its turn controls the Supermarine Aviation, Cooke Troughton & Sims which manufactures, among other things, sights and optical appliances used in warfare, and a number of finance companies whose objects it is difficult to ascertain. Among these should be noticed the Broadway Finance and Investment Co. which is sometimes found holding shares and lending money to firms in the Vickers-Armstrong's group.

Vickers has also invested heavily in William Beardmore & Co. It holds 108,000 second preference shares and appears to be among the largest of the debenture holders in that firm. As Beardmore is controlled by the debenture holders and by the preference shareholders, this puts Vickers in a very strong position with regard to the control of a nominally competing armaments firm.

Thus, though Armstrong Whitworth Securities, Vickers, Cammell Laird and Beardmore appear to be competing in certain branches of the armaments industry, they are in fact so closely linked together that it is impossible to describe them as independent firms.

John Brown & Co. stands slightly outside this group and its connection with Vickers is not so close as that of Armstrong Whitworth Securities or Cammell Laird.

It has already been noted that the steel interests of Firth Brown, a subsidiary of John Brown & Co., are closely linked up with the English Steel Corporation (uniting the steel interests of Cammell Laird, Armstrong Whitworth Securities and Vickers). Firth Brown is linked to the English Steel Corporation through Firth Vickers Stainless Steels, the Electrode Company of Sheffield, the Oughtibridge Silica and Firebrick Company, and was closely associated with the E.S.C. in the Carnforth Haematite Iron Company. Further links are provided by the Michell Bearing Co. and the Shipbuilders Securities. More interesting, however, and showing clearly the ramifications of the finance of the big armament groups is the connection between the electrical interests of John Brown and of the Vickers Group.

In 1919 John Brown, Cammell Laird and the Fairfield Shipbuilding Company formed together the

English Electric which took over, among other things, the old Coventry Ordnance Works, up till then controlled jointly by the Fairfield Shipbuilding Company and Cammell Laird. Until 1930 the English Electric was controlled by John Brown & Co. and Cammell Laird continued as a very large shareholder. In 1930, after the reorganisation, John Brown was left with only 20,765 ordinary shares out of a total ordinary share capital of 1,443,500. But it seems likely that some of the directors and other corporations, who appear with large shareholdings are nominees of John Brown & Co. and of Cammell Laird. The main control of the company, however, rests with nominees of American concerns, for example, the Chase nominees hold 125,000 ordinary shares and an American director Brig. General W. H. Hayes holds (presumably as a nominee) 300,000 ordinary shares.

Vickers has also electrical interests which are represented by Associated Electrical Industries which include as subsidiaries Metropolitan Vickers and Metropolitan Vickers Export (the Company concerned in the Russian Spy trial). Out of 4,896,000 ordinary shares, Electric Holdings Ltd., a Vickers subsidiary, holds 493,643. Vickers Train Lighting Ltd., another Vickers subsidiary, holds a further 50,000 and General Sir Herbert Lawrence, the Vickers nominee on the Board of Associated Electrical Industries, another 40,000. As with English Electric the main control of the company is held by American interests, chief of whom are the International General Electric Corporation of New York which, together with its associates subsidiaries and nominees holds just over 1,200,000 shares. It is quite conceivable that, if it were possible to investigate these American interests, it would be found that the same financial groups which ultimately control the International General Electric Corporation also control the interests behind the nominees controlling English Electric.

At any rate, English Electric and Associated Electrical Industries are connected through interlocking directorates. Mr. C. F. Spencer sits on the board of both companies. The Anglo-American banking firm of Higginson & Co. is closely associated with English Electric. One of the partners in this concern is Sir Guy Granet, director of Associated Electrical Industries. Finally, as has been noticed, Associated Electrical Industries and English Electric are connected through Dorman Long and Associates (China), though it should be noted that English Electric is not a shareholder in this concern.

These inter-connections through the Electrical Industries of the various concerns, have been gone into at some length because they do show the complexity of the financial connections of the English heavy armament industry.

There is yet another way in which firms in this group are connected. It sometimes happens that subsidiary companies belonging to the different groups are connected because some outside investment company or bank lends them money or participates in their capital. For instance, up till 1933, the British and Allied Investment Corporation had lent money to the Darlington Forge (at that time controlled by Vickers-Armstrongs through the Glyn nominees and the Broadway Finance & Investment Company). The British Allied Investment Corporation had also lent money to Craven Bros. controlled by Armstrong Whitworth Securities. Mr. H. E. Carter, a director of the British & Allied Investment Corporation therefore sat on the boards both of the Darlington Forge and of Craven Bros.

The Czechoslovakian armament works of Skoda has large investments in the British & Allied Investment Corporation and the British & Allied Investment Corporation is the Trustee in England for the Skoda Debenture holders. The British & Allied Investments together with Skoda control the British Sugar Manufacturers. Skoda has the right to nominate the chairman of this company and the gentleman it has nominated is Mr. H. E. Carter, director of Craven Bros. and until last year director of the Darlington Forge. Thus we have the situation that, not only is Craven Bros. connected to the

Darlington Forge via Armstrong Whitworth Securities, Vickers-Armstrongs and the English Steel Corporation, it is directly connected via the British and Allied Investment Corporation which in its turn is connected to Skoda. Skoda is itself controlled by Schneider.

No account of the heavy armament industry would be complete if it did not include some account of the international connections of the Vickers-John Brown group.

The American connections of the electrical side of John Brown and Vickers have already been noted.

In dealing with Parsons it has been shown that it has a foreign subsidiary in which John Brown and Vickers participate.

In the same way in dealing with the steel interests of the group it has been shown that Vickers, John Brown and Hadfield often participate in companies which have mines and interests abroad. For example, Vickers-Armstrongs, through the English Steel Corporation has shares in the S.A. le Nickel, the principal French nickel firm. No doubt the other armament firms have also shares in this concern but it is difficult to prove as we have no access to the books of the French firms. In 1901 the S.A. le Nickel joined with Vickers, John Brown & Co., and Beardmore to form the Anglo-French Nickel Co. which, until 1931 carried on a nickel refining business in England.

It has already been noticed that the English armament firms joined in producing their steel alloys in the High Speed Steel Alloys and in the High Speed Steel Alloys Mining Co. But more significant in showing the international ramifications of the armament industry is the position of the Steel Manufacturers Nickel Syndicate. The Steel Manufacturers Nickel Syndicate contains only armament firms and it contains almost all the principal armament firms of Europe with the exception of those of the ex-enemy countries. It was, like the Anglo-French Nickel, founded in 1901. Its office has always been the Vickers office. Its secretary has always been a member of the Vickers staff, and until the Anglo-French Nickel was wound up he has usually been a director or secretary of that company. The shareholders in the Steel Manufacturers Nickel Syndicate when founded were Beardmore, Cammell Laird, John Brown & Co., Schneider, Krupp and Dillinger, or their nominees. Later the Terni, the Italian armaments works, the Wiltowitz Bergbau Eisenhuter C.A., the French naval construction firms of St. Chamont and of Chatillon and the English firm of Hadfields joined the list of shareholders.

In 1917 the names of Krupp, Dillinger and Wiltowitz were removed from the shareholders' list and their shares transferred to the secretary of the company. The present, 1935, list of companies which either hold shares themselves or hold through nominees is as follows:

Beardmore, Firth Brown, Chatillon, the English Steel Corporation (= Vickers, Armstrong Whitworth Securities and Cammell Laird), Hadfield, Marine et de Homecourt, Schneider, Terni, Vickers-Armstrongs, together with the secretary, who holds the shares originally belonging to Krupp, Dillinger and Wiltowitz.

The object of the Steel Manufacturers Nickel Syndicate is to buy nickel for the member companies, that is to say, to see that whoever goes short of nickel it will not be the armament firms.

Thus the Vickers, John Brown group is closely associated with the French and continental armament firms in the control of raw materials essential for armament work.

The Vickers group is also closely connected with the French armaments group through the other interests of the financiers who control the parent companies in the group.

The control of the board of Vickers is closely bound up with the banking house of Glyn Mills, who are Vickers' bankers, and who hold shares as nominees in Vickers-Armstrongs. Two partners of Glyn Mills, Sir Herbert Lawrence and Mr. A. T. Maxwell sit on the board of Vickers. Two partners of

Glyn Mills also sit on the board of the London Committee of the Ottoman Bank. These two partners are Sir Herbert Lawrence and his brother-in-law Lord Hillingdon. Sir Herbert Lawrence also is chairman of the Anglo-International Bank, on the board of which sit three other directors from the London Committee of the Ottoman Bank. The controlling block of shares in the Anglo-International Bank stands in the name of Sir Herbert Lawrence, Sir Otto Niemeyer (incidentally a director of Vickers-Armstrongs) and Sir Peter Bark (a former Czarist Minister of Finance).

Thus, the chairman of Vickers, Sir Herbert Lawrence, is also one of the most important partners in Glyn Mills and is chairman of two very important Anglo-European Banking concerns, the London Committee of the Ottoman Bank and the Anglo-International Bank. Sir Herbert Lawrence is also chairman of the Bank of Roumania, which is an offshoot of the Ottoman Bank.

The Paris Committee of the Ottoman Bank is closely linked to that group of companies and banks which is dominated by Schneider. Mr. Horace Finaly, who is popularly reputed to be the power behind the Comité des Forges, sits on the board of both the Paris Committee and of the Banque de l'Union Parisienne, whose relation to Schneider is roughly similar to that of Glyn Mills to Vickers. M. J. de Neufville sits both on the board of Schneider and on the Paris Committee. Three members of the Paris Committee, M. J. de Neufville, M. F. Mallet, and Baron Hottinguer sit on the board of the Union Européenne, which is a company controlled by Schneider which controls Schneider's heavy steel and armament interests abroad. There is thus a very close connection between the Paris Committee of the Ottoman Bank and Schneider. The Paris Committee and the London Committee are closely associated over a number of joint enterprises, among which may be mentioned, as well as the Bank of Roumania, the British-French Discount Bank. The London Committee is closely associated with Vickers. Sir Herbert Lawrence is chairman of both, Mr. A. J. A. Jameson sits on the board both of the Ottoman Bank and of Vickers, Sir Guy Granet is on the board of Associated Electrical Industries and the Ottoman Bank. The link between Vickers and the Ottoman Bank is strengthened by the fact that besides Sir Herbert Lawrence another director of Vickers' bank, Glyn Mills, is on the board of the London Committee.

The Anglo-International Bank is equally linked to the Ottoman Bank, with whom it shares four directors, and with Vickers, whose chairman is also its chairman. As has been noted, the control of the Anglo-International Bank is in the hands of three persons, one of whom is chairman of Vickers and of Vickers-Armstrongs, another of whom is a director of Vickers-Armstrongs. Among the concerns in which the Anglo-International Bank has large interests is the Anglo-Czechoslovak and Prager Bank. Two directors from the Anglo-International Bank sit on the board of the Anglo-Czechoslovak. Among the other directors of the Anglo-Czechoslovak is Mr. H. E. Carter, whom we have met as a director of Craven Bros. as a former director of the Darlington Forge, as managing director of the British and Allied Investment Corporation, and as a nominee of Skoda as chairman of British Sugar Manufacturers.

Among other directors of the Anglo-International Bank is Major Julian Day, a former United States subject, who is one of the two managing partners of Dawday Day, a private bank. The other managing partner in this concern is General Dawday, chairman of Armstrong Whitworth Securities and deputy chairman of Vickers-Armstrongs.

Thus, the Anglo-International Bank is directly connected to Vickers Ltd. through Sir Herbert Lawrence who is chairman of both companies. It is directly connected to Vickers-Armstrongs through Sir Otto Niemeyer who, though not a director of the Anglo-International Bank is, nevertheless, one of three persons who hold the controlling block of shares. The Anglo-International Bank was directly connected with the English Steel Corporation subsidiary, the Darlington Forge through Mr. H. E.

Carter. It is still directly connected to the Armstrong Whitworth subsidiary Craven Bros. through him. It is indirectly connected to Armstrong Whitworth and to Vickers-Armstrongs through Major Day and Dawday Day.

Finally, as an example of the very close relationships which exist between the Vickers group and the Ottoman Bank and the Anglo-International Bank, it may be stated that between 1929 and 1933 all the shares of the Broadway Investment & Finance Co. stood in the names of two officials of the Anglo-International Bank. Notwithstanding this the directors of the Broadway Finance & Investment Co. were not directors or nominees of the Anglo-International Bank but were the directors of Vickers.

To sum up, Vickers and, to a lesser degree, Armstrong Whitworth Securities and Glyn Mills (Vickers' bank) are very closely connected with the Anglo-International Bank and with the London Committee of the Ottoman Bank. The London Committee of the Ottoman Bank and the Anglo-International Bank are themselves closely connected by four interlocking directorates. The counterpart of the London Committee of the Ottoman Bank, the Paris Committee is very closely connected through interlocking directorates with the group of banks and finance companies associated with Schneider. The Anglo-International Bank is interested in banking houses in Czechoslovakia, Hungary and Poland where the subsidiary firms and interests of the Schneider group is greatest. The Ottoman Bank controls the Bank of Roumania in which country both Vickers and Skoda have important interests.

Secondly, through the British and Allied Investment Corporation, Armstrong Whitworth and Vickers-Armstrongs have been indirectly linked with Skoda which is a subsidiary of Schneider.

Thirdly, through the Steel Manufacturers Nickel Syndicate the S.A. le Nickel and the Anglo-French Nickel, John Brown, Hadfield, Beardmore, Vickers, Cammell Laird and Armstrong Whitworth have all been connected with the French and European armament firms.

Fourthly, Vickers and Armstrong Whitworth Securities, through their control of Vickers-Armstrongs, have investments in many foreign armament firms, of which probably only a few are known. It is certain however that Vickers-Armstrongs has investments in the Sociedad Construcción Navale of Spain, in which it is thought that Krupp has also investments. It has investments in the Japanese steel works in which Schneider has also interests, and there are others including the unexplained firm of Vickers-Schneider about which the chairman said at the last Vickers meeting there was a plan to form such a company but that it fell through.

Summary.

The Heavy armaments industry falls into three main divisions—

- (1) the making of armour plate, armament steel, and ordnance;
- (2) naval shipbuilding;
- (3) small arms.

A fourth division might be given for tanks, but as they are made only by Vickers-Armstrongs, they can be conveniently considered under the first head.

The firms under the first head are:—

The English Steel Corporation (which is composed of Vickers Ltd., Armstrong Whitworth Securities, and Cammell Laird).

John Brown & Co. and its subsidiary Thos. Firth and John Brown.

William Beardmore & Co. (controlled by Vickers).

Hadfield.

Of these the English Steel Corporation and John Brown are by far the most important, for everything except armour piercing shells which are almost exclusively made by Hadfield. All these four firms are bound together by subsidiary companies seeking for raw materials and John Brown and Vickers are further linked by the amalgamation of their stainless steel interests.

In the second class the number of firms is much greater. They can, roughly speaking, be divided into three classes, those which build ships of all sizes, those which confine themselves to marine engines and those which specialise in lighter craft. Among the first class are found in addition to Vickers-Armstrongs, John Brown and Cammell Laird; Scott's Shipbuilding & Engineering Co., which is now for practical purposes exclusively an armament firm, only to-day building ships for the Navy; the Fairfield Shipbuilding Co., controlled indirectly by Kleinwort; and Swan Hunter & Wigham Richardson. Also in this class are Harland & Wolff and R. & W. Hawthorn Leslie, which occasionally build for the Admiralty.

In the marine engineering class are only four important companies: The Wallsend Shipway & Engineering Co., which obtains only comparatively small order and is controlled by Swan Hunter & Wigham Richardson; William Beardmore & Co., which is closely connected with Vickers; Parsons Steam Turbine Co., related to Vickers-Armstrongs; and Babcock & Wilcox boiler makers, which is an international firm with subsidiary companies in every country.

In the third class are John I. Thornycroft & Co., which specialises in destroyers and light craft for the Admiralty, and which at the moment is practically only building ships for the Navy, but which also does large motor bus and tractor business; Yarrow & Co., which is practically only building boats for the Navy at the moment and which has also important marine boiler works; J. Samuel White, whose orders at the moment are practically confined to work for the Admiralty and the Polish Government; and Alec. Stephens & Sons, which does a certain amount of civil work but the majority of whose construction at the moment is for the Admiralty.

In the third class of small arms the most important producers are Vickers-Armstrongs, the Birmingham Small Arms Co., the Projectile & Engineering Co., and the groups represented by the Gunmakers' Association. Through subsidiary firms the Birmingham Small Arms Co. is connected with the High Speed Steel Alloys and thus with Vickers and the other armament firms.

Thus, by far the most important firm in the heavy armament industry is Vickers which has drawn into its orbit Armstrong Whitworth Securities, William Beardmore, Cammell Laird and John Brown. This group, together with Hadfield, controls the output of steel for armament purposes and the members of the group dominate the naval shipbuilding and the small arms trade as well as monopolising the ordnance and armour plate business. Through the Anglo-International Bank and the Ottoman Bank Vickers is closely linked up with Schneider and the French armament group. Through their investments abroad the Vickers group is further connected with foreign armament firms and in order to obtain certain raw materials essential for armament work, Vickers and other members of this group have amalgamated their raw material interests, and have combined to obtain these raw materials with French and Italian armament firms.

CHAPTER 3.

THE CHEMICAL INDUSTRY.

- (1) Introduction.
- (2) The Manufacture of Chemical Warfare Agents.
- (3) Explosives, Ammunition and Intermediates.
- (4) The Existing Organisation of the Chemical Industry.
- (5) The Industry of Defensive Measures against Gas Attacks.
- (6) Bibliography.

(1) INTRODUCTION.

The Chemical Industry and the Supply of War Material.

The Royal Commission on the Private Manufacture of and Trading in Arms is required, under its terms

of reference, to consider the practicability and desirability of the prohibition of the private manufacture of war material, and the institution of a State monopoly of such manufacture and trade, and to examine the present arrangements in force in the United Kingdom relative to the control of the export trade in war material.

The problem in this chapter is to apply these principles to the Chemical Industry in its relation to war material. It is impossible to give a complete analysis of this vast industry within the limits of this memorandum which has been drafted as an introduction, and as an indication of the problems which the Royal Commission is considering.

The Chemical Industry manufactures two main groups of war material, namely explosives and poison gases, and since the emphasis upon the efficacy of these mediums should serve to show the importance of any change which may reduce the risk of war, the efficacy of poison gases may be suitably described at this stage.

It is difficult to calculate the actual effect of a bombardment with poison gases; data are not easy to obtain, and lethal dose rates are based upon animal, not human life. However, those gases which are lethal for animals are also lethal for human beings, the chief differences being the larger dosage required for humans. In addition, there are numerous physical factors such as wind, which will disturb the gas layers, or they will diffuse with varying rapidities. A cloud of gas would be more concentrated at bomb discharge points than on the fringes of such explosion and the gas, being denser than air, may be more concentrated in low lying land.

For the purpose of estimation of the effect of the gas, it may be assumed that a flat surface of one square mile is to be covered with a blanket of gas, twenty feet thick, without the complications of all the incalculable factors. It should be clearly understood that these circumstances are impossible of attainment, and that air movement is bound to reduce the effectiveness of the gas. It is, however, a common practice in scientific work to make basic calculations of this sort in order to compare the relative effects by different gases, etc.

Now a lethal dose required to kill a dog in thirty minutes is, for two well-known war gases, as follows:—

Phosgene—0.3 milligrammes per litre of air.

Lewisite—0.05 milligrammes per litre of air.

From this information it is calculated that 4.7 tons of phosgene or 0.8 tons of lewisite would, under ideal conditions, give a lethal dose over a square mile in a blanket twenty feet deep.

The following calculations illustrate the potential production of poison gas in a war situation. There could be a production of chlorine during war time of over 1,000 tons per week, which chlorine could be used to manufacture either 1,380 tons of phosgene or 1,395 tons of lewisite. This amount of lewisite under the conditions detailed above would cover about 1,750 square miles of ground, being an area 50 miles long and 35 miles wide. Figure 5 gives these relations and some idea of the number of bombing planes of 5,000 lbs. carrying capacity necessary for this experiment. Any reasonable factor for the incalculables or for the difference in lethal dose between man and animal may be assumed. But the deadliness of this warfare will still be apparent.

In considering the lethal effectiveness of gases note should be made of the fact that mustard gas, lewisite and arsenious dusts are persistent, and not easily disturbed, as are chlorine, phosgene and the nitrogenous gases. There is little true protection for the civilian population. Mustard gas and lewisite act upon the skin, and cumbersome complete rubber protection is necessary. Filter gas masks can be made, capable of dealing with most of the gases named, but sneezing gas in certain concentrations will penetrate. In any case, if the concentration is great, there may not be sufficient oxygen present to sustain life and therefore portable or fixed oxygen inhalers are necessary for complete protection. Shelters equipped for the protection of the civilian population, bomb proof and equipped with oxygen

apparatus would cost an enormous sum, probably £50 per head of the population in our cities.

All talk of civilian protection in cities is talk only, unless each human being is possessed of a gas mask, and has an oxygen equipped bomb proof shelter, with artificial ventilation and filters within one hundred yards of his home. Even then, the destruction of the cities by incendiary and high explosive bombs means that all essential services may have ceased to exist. Thus the "safety" of the gas proof shelter is only left for a city destroyed by aerial bombardment.

Such are the nature of the possibilities of chemical warfare, and such the urgency of stabilising peace.

The general expansion of the chemical industry since 1918 has increased its war potential. The explosives section of the industry has likewise expanded, many of the intermediates, and particularly the relatives of the explosives proper, having far greater pacific markets than was the case. Intermediates are essential compounds required at various stages before the final product can be produced. Great profits are made in this branch, and particular regard should be paid to the fact that the exports of military ammunition rose from 1924 to 1930 by 32 per cent. to 50.6 per cent. of the total manufactured, whilst 20.8 per cent. of the high explosive manufactured by private firms is exported.

This analysis of the chemical industry takes cognisance of the fact that the major basis for poison gases, chlorine, is a product with legitimate pacific uses, and that the intermediates and even the relatives of war explosives, are industrial needs. The industry is bound together fairly closely, and the points of possible diversion are debatable, but an attempt is made to show the most practicable forms of diversion, either for state control or for licensing of exports.

The order in the following sections is as follows:—

The first section deals with the manufacture of chemical warfare agents, poison gases and the like, with fairly full detail of the chlorine position, and the second section with the explosives, the intermediates and the position of the towns' gas, coke oven and dyestuffs industry in relation thereto. Later this information, preceded by a survey and a description of the existing organisation of the industry, is used as the basis of the problems which it is argued are essential for consideration by the Royal Commission.

The chemical industry is one which by the rapid advancement of scientific knowledge has become the backbone of all military effort, able within the law to deal in implements of warfare capable of the destruction of our civilisation, and supplying those means in vast quantities to the storm centres of the world. Its activities are encouraged by governments because of the increased war potential placed within their borders consequent upon that trade, but the industry is left to use its own means of securing its markets for these war products.

(2) THE MANUFACTURE OF CHEMICAL WARFARE AGENTS.

(Poison gas and the like.)

The manufacture of chemical warfare agents demands the existence of a heavy chemical industry, which is more important for this purpose than the fine chemical industries. These heavy chemicals are such substances as sulphuric, nitric and hydrochloric acids, liquid chlorine, bleaching powder, caustic soda and soda ash.

The details of the manufacture of these materials are given elsewhere in this paper but it should be stated that the primary raw materials are:—

Coal,
Limestone,
Salt,
Sulphur or sulphur compounds,

given these, and the necessary agricultural resources to yield alcohol, not only the important marketable chemicals can be produced (both organic and inorganic) but also most of the important war gases. The only additions to this list to make it complete

for war gas manufacture are white arsenic and bromine.

The resources of our country are ample for coal, limestone and salt production. We import sulphur from America and Italy or in the form of iron pyrites (iron sulphide) from Spain.

The immediate raw materials or industrial chemicals required, are listed below:—

Common salt,
Chlorine,
Carbon monoxide,
Bleaching powder,
Picric acid,
Sulphur chloride,
Ethylene or Alcohol,
Acetylene,
Arsenious oxide,
Benzene,
Methyl Sulphate,
Bromine,
Sodium nitrate,
Sulphur Dioxide,
Hydrochloric acid.

All these materials have great pacific uses, or are used in the manufacture of pacific industrial materials.

Some of the poison gases have legitimate pacific uses, for example chlorine, which is dealt with in detail under the heading of "The production of chlorine".

The demand for war-time poison gas manufacture is shown in Schedule I which is the detail of output of the Edgware Arsenal, U.S.A., for 1918.*

SCHEDULE I.

Schedule of Production 1918.

Edgware Arsenal, U.S.A.

Raw Materials.

	Material.	Weight Lb.
1.	Salt	17,358,000
2.	Bleach	42,384,000
3.	Picric acid	3,718,000
4.	Sulphur	24,912,000
5.	Sulphur Chloride	6,624,000
6.	Alcohol	3,718,000
7.	Bromine	238,000
8.	Benzyl Chloride	26,000

Production and Shipments.

	Material.	Production Lb.	Shipped Lb.
1.	Chlorine, liquid	5,446,000	2,976,000
2.	Chlorine, gaseous	2,208,000	—
3.	Chloropicrin	5,552,000	3,806,000
4.	Phosgene	3,233,000	840,000
5.	Mustard gas	1,422,000	380,000
6.	Bromobenzyl Cyanide	10,000	—

These outputs are fractional in comparison with our modern resources.

Schedule II is a summary of the various poison gases and liquids known to the chemical industry as being useful in war, and a detailed description of each gas, its manufacture from certain raw materials, its toxicity and commercial uses if any are given in detail, together with a classification list of these gases.

In addition Flow Sheets P.G.2-9 (Figures 6A-6D) give the manufacturing method and place of use of each raw material or re-agent.

It will be obvious that from this information a schedule of gases can be compiled that will enable a licensing scheme or alternatively a scheme for state control to be worked out in a general fashion.

The Classification of Chemical Warfare Agents.

The classification of the most efficient known compounds is given below:—

* Quoted from *Chemical Warfare* by Fries West 1921 (McGraw Hill Book Co.).

1. *Tear gases or lachrymators.*

These are not lethal except in high concentrations, but are used for disabling by causing a profuse flood of tears:

- (a) Benzyl Bromide.
- (b) Xylol Bromide.
- (c) Bromacetone.

2. *Lung irritants (lethal).*

- (a) Chlorine.
- (b) Phosgene.
- (c) Chloropicrin.

3. *Blistering gases or vesicants.*

These are intensively poisonous, but used against protected persons disable rather than kill.

- (a) Mustard gas.
- (b) Lewisite.

4. *Sensory irritants or sneezing gases (not essentially lethal).*

- (a) Arsenical smokes.

5. *Paralysants (lethal).*

- (a) Prussic acid gas.
- (b) Sulphuretted hydrogen.

SCHEDULE II.

Poison gases—Summary of reagents for manufacture.

Agent.	Made from.
1. Tear Gases.	
(a) Benzyl Bromide...	Benzen, Bromine.
(b) Xylol Bromide ...	Xylene, Bromine.
(c) Bromacetone ...	Acetone, Bromine.
2. Lung Irritants.	
(a) Chlorine ...	Common Salt.
(b) Phosgene ...	Chlorine and Carbon Monoxide.
(c) Chloropicrin ...	Bleaching Powder and Picric Acid.
3. Vesicants.	
(a) Mustard Gas ...	Sulphur Chloride and Ethylene.
(b) Lewisite ...	Acetylene and Arsenious Chloride.
4. Toxic Smokes.	
(a) Diphenylchloroarsine.	Benzene, Sodium Nitrate, Hydrochloric Acid, Sodium Arsenite, Sulphur Dioxide.
(b) Methylchloroarsine.	Sodium Arsenite, Methyl Sulphate.

The requirements of a lethal war gas.

The essential requirements are:—

- (1) Must be highly toxic.
- (2) Must be capable of ready manufacture in large quantities.
- (3) Must be readily compressible to a liquid and yet be easily volatilised when the pressure is released.
- (4) Should be considerably heavier than air.
- (5) Should be stable against moisture and other chemicals.

Survey of manufacture.

The manufacture of these poisons is completely dependent upon the heavy chemical industry for chlorine and hydrochloric acid. The heavy chemical industry requires expensive plant and is not readily capable of expansion, but the manufacture of the lethal substances from organics and heavy chemicals is very simple and does not require more than the normal equipment of any chemical works.

Few of the lethal substances have any commercial use, therefore the complete prohibition of manufacture raises no serious industrial problems. The existing chemical warfare station of H.M. Government is quite capable of carrying out the research necessary, and of preparing plans to utilise the existing chemical factories with trifling delay in time of war, so that, with exception to chlorine par-

ticularly and in a lesser degree phosgene, the problem of sale prevention should not exist in the minds of any reasonable persons.

The ease of manufacture from the intermediate materials makes it essential that all these intermediates that have a small pacific use should be most strictly controlled, and in some cases completely prohibited. Upon this basis the suggested schedules of licensing and prohibition have been compiled.

Since chlorine manufacture is of such fundamental importance, a complete description is given of its manufacture. The memorandum aims at illustrating the relationship between raw materials and chemical products as well as the possibility of expansion of the industry to meet a large increased demand. A detailed description of the use of chlorine in the final stages of lethal substance production has not been given.

The production of chlorine.

The process as seen in the flow sheet, Figure 7, is based upon the electrolysis of brine and presupposes the existence of salt in quantity and of cheap power. Previously existing methods of manufacture of alkalis by chemical reaction used little power, but heat as steam, in quantity, whereas the electrolytic method demands a very high power production at a cheap rate and requires only about 2 per cent. of the steam generated for heating purposes. The advance of the electrolytic method is therefore due to the technical progress of power production.

Prior to the War, only one plant of this kind was in service in Great Britain, that being the Castner Kellner Alkali Co. at Runcorn, Cheshire, and it was from this source, and from Levinsteins, the dyestuffs manufacturers (both now part of I.C.I.) that much of the chlorine and other poison gases was supplied to the Allied Powers.

Chlorine sale has been the paramount difficulty in the economics of the electrolytic alkali production, and the lack of market for its use resulted in the major portion manufactured being made in bleaching powder at a higher cost than that made by chemical reaction measures. It can be stated that the price of chlorine products was based upon the market price of caustic soda, which often enabled the chlorine product market to be below production cost.

Naturally this state of affairs was of serious importance to the electrolytic alkali manufacturers, and new uses for chlorine were sought. Certain developments such as that of the artificial silk industry provided a great market after the War, and the technical superiority of the use of chlorine instead of bleaching powder led to its use as a sterilising agent, which use is constantly increasing. In addition the lower transport charge for liquid chlorine (in terms of its effectiveness) as against bleaching powder or bleach liquor, makes it commercial for users of these materials to manufacture bleach liquor at their own works, from lime and liquid chlorine.

The export of chlorine is relatively small, there being difficulties of transport for reasons of safety and economic difficulties in the cost/usage time of the expensive containers, but an export trade is being developed and will need consideration.

A further effort to stabilise more completely the chlorine position is in the manufacture of non-inflammable grease or oil solvents such as trichlorethylene, which materials have their commercial outlet in fat extraction, dry cleaning, and the preparation of metals for painting and plating.

A very important tendency in artificial silk manufacture, cutting out the use of chlorine, will probably result in a reduction of output more than equal to any other possible commercial increment. In fact that reduction in the near future could result in the release for war purposes of a further 400 tons of chlorine per week, reducing the load factor of existing plants very considerably.

The position is further complicated by the balancing of sales of chlorine and caustic soda. Caustic soda is still the primary product. It can be readily stored in drums in very large quantities without much deterioration, but if there is a high demand for caustic soda, then the chlorine which is still

turned out in the same ratio, cannot be stored in quantity without prohibitive capital costs. Some alkali manufacturers are placed in difficulty by this, but the largest producer, Messrs. Imperial Chemical Industries, Ltd., attempts to meet this situation by diversion of the caustic soda supplies from its electrolytic to its chemical re-action branches. It can, however, be stated that the electrolytic alkali manufacturers have a normal and legitimate industrial market for chlorine and chlorine products up to the full commercial capacity, i.e., 60-70 per cent. of installed plant capacity.

In addition to being an industrial material, chlorine is a deadly poison gas, which can be used directly, and in its industrial containers for war purposes. It is also the primary raw material for the manufacture of most of the chemicals used in gas warfare.

Possibilities of War-time expansion of Chlorine Manufacture.

It would be very difficult to carry through any war time expansion, in view of the high capital charges and the nature of the equipment required. In general, the plant required, and the estimated war time delivery period is as follows:—

	Months.
Boilers and auxiliaries	10
Turbo-alternators	10
Electrical equipment	4
Cells	8
Compressors	4
Caustic evaporators	4
Buildings	4

It will be seen that the electrical power plant would require even under urgency, a period of twelve months to put into commission, and of course full use of existing power generating stations would be made, but even so, the huge power requirements for this process, and the fact that the electrical energy if supplied from the grid system, generated as alternating current, would need to be converted into direct current, would in practice make it an almost super-human task to build and operate a new factory within one year.

At present prices the erection of a factory to produce 1,000 tons of chlorine per week would be about £3 million and require a constant electrical load of 40,000 k.w.

The line of development therefore would be towards the rapid extension of existing factories, where trained personnel are available for this difficult work. Even so, development of plant capacity would be slow. It should be understood that chemical processes such as these are continuous, and no addition can be made by overtime working excepting that in preparing plant for overhaul or repair. In time of stress it would be impossible to increase the maximum output figure from 2,100 tons of chlorine per week to 2,500 tons without uneconomic working.

The rational method of increasing war time availability would be to cut down chlorine usage in those industries of secondary importance in war time.

Estimates of Chlorine production.

The following estimates are not exact, but the total available productivity will be found to be within 10 per cent. error.

	Tons Chlorine / week.		Tons Chlorine / week.
	Normal.	Continuous maximum	
Totals ...	1,750	2,100	350
Ratio ...	5	6	1

It must not be assumed that these quantities could be released for war purposes. The industrial demand would to a great extent be met with bleaching material from other processes, but some would be supplied with chlorine. Over 1,000 tons per week

could be released for warfare, mainly at the expense of the textile and paper industries.

The fact that this method of chlorine production is normally carried out in conjunction with that of hydrochloric acid and sometimes of sulphur chloride, both intermediates for poison gases, should be noted.

A list is now given of the main poison gases as well as a brief description of their properties, the main raw materials and intermediates and their commercial uses, if any.

Detailed Description of Poison Gases.

Lachrymators.

1. Benzyl and Xylol Bromides ($C_6H_5CH_2Br$, etc.).

(a) *Properties.*—Both are colourless liquids boiling over $200^{\circ}C$. One part per million in air causes profuse lachrymation.

(b) *Manufacture:*

(i) Raw materials.—Bromine and benzene or xylene.

(ii) Method. Mix and allow reaction.

(c) *Commercial uses.*—None, but bromine is used in the dye industry for making lead tetraethyl, for medicines, and for photographic chemicals.

2. Bromoacetone ($CH_3Br.CO.CH_3$).

(a) *Properties.*—A water clear liquid boiling at $127^{\circ}C$.

(b) *Manufacture:*

(i) Raw Materials. Acetone and bromine.

(ii) Method. Mix and allow reaction.

(c) *Commercial uses.*—None. Acetone is used largely as a solvent in the manufacture of explosives. It is also used in making chloroform. It is prepared (a) by passing the vapours of acetic acid through hot tubes containing a catalyst, (b) by bacterial decomposition of maize, and (c) from isopropyl alcohol.

Lung Irritants.

1. Chlorine (Cl_2).

(a) *Properties.*—A yellowish-green gas $2\frac{1}{2}$ times heavier than air, soluble in water. Chlorine condenses to a liquid when its temperature is reduced to $-34^{\circ}C$ or when at normal temperature the pressure upon it increases to 100 lb. per square inch. It is marketed as a liquid under pressure in strong steel cylinders, or in tank-wagons.

(b) *Manufacture.*—This is fully detailed in the special description of this important process. Simply the process is to electrolyse a solution of common salt, chlorine gas coming off at the positive pole.

(c) *Commercial uses.*—These are fully detailed in the special description. Briefly, as liquid chlorine for bleaching and sterilising, and for the manufacture of bleaching powder, hydrochloric acid and many organic products.

(d) *Toxicity.*—Lethal dose $2\frac{1}{2}$ milligrammes per litre of air, kills a dog in $\frac{1}{2}$ hour.

2. Phosgene ($COCl_2$). Carbonyl Chloride.

(a) *Properties.*—A colourless gas; liquefies at $8^{\circ}C$. Odour suggestive of green corn or musty hay. Is $3\frac{1}{2}$ times heavier than air. Extremely poisonous 25 parts volume in one million parts of air is fatal. It is marketed in steel cylinders, at a pressure of 90 lb. per square inch and normal temperature.

(b) *Manufacture:*

(i) Raw materials. Chlorine and Carbon Monoxide. (The carbon monoxide is formed by the burning of carbon in a limited air supply. It is also a waste product of many processes. It is used for many pacific purposes, such as the production of formates.)

(ii) Method. $CO + Cl_2 = COCl_2$. A mixture of chlorine and carbon monoxide is passed through a box containing charcoal, which acts as a catalyst.

(c) *Commercial uses.*—Relatively small. Used for certain dyes, e.g. crystal violet. Also used in making synthetic essence of violets, to a smallish extent in making certain kinds of glass, and sometimes for exterminating rats and moles.

(d) *Toxicity*.—Eight times as toxic as chlorine. A dose of 0.3 milligrams per litre of air kills a dog in 30 minutes.

3. Chloropicrin. (CCl_3NO_2).

(a) *Properties*.—A colourless oil boiling at 112°C . Insoluble in and heavier than water. A very stable compound. Used for warfare in gas shells. It is a lachrymatory as well as an irritant.

(b) *Manufacture*:

(i) Raw materials. Bleaching Powder and Picric Acid.

(ii) Method. By blowing steam through a mixture of bleaching powder and picric acid Chloropicrin passes over with the steam and is condensed.

(c) *Commercial uses*.—These are very few though its use as a fumigant against insects has been suggested. Picric acid is however used as a dye and an explosive. It is prepared from benzene or carboic acid by the action of nitric acid.

Vesicants.

1. Mustard Gas.—Dichlorethylsulphide. $(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{S}$.

(a) *Properties*.—This is not a gas, but an oil boiling at 200°C . When pure it solidifies at 14°C . It is almost insoluble in and heavier than water.

(b) *Manufacture*:

(i) Raw materials. Alcohol, sulphur and chlorine. From these are prepared ethylene and sulphur chloride which form the immediate raw materials for mustard gas.

(ii) Method.—Ethylene is passed into a solution of sulphur chloride in previously prepared Mustard Gas. (This is the best and British method.) $2\text{CH}_2 = \text{CH}_2 + \text{S}_2\text{Cl}_2 = (\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{S}$.

(c) *Commercial uses*.—None. Of the raw materials ethylene is of great use in the organic chemical industry, and sulphur chloride is a liquid used in vulcanising rubber.

(d) *Toxicity*.—It is used as a vesicant, but the vapour is very poisonous—about equivalent to phosgene. The death rate however is very low, with trained soldiers only being less than 1 per cent. of the cases treated.

2. Lewisite or "Dew of Death".—Chlorovinylchloroarsine ($\text{CHCl} : \text{CH} : \text{AsCl}_2$). Mixed with β , β' -dichlorodivinylchloroarsine. This poison was discovered just before the armistice in 1918, but was not used in the war.

(a) *Properties*.—A colourless or faintly yellow liquid of high boiling point.

(b) *Manufacture*:

(i) Raw materials. Acetylene, arsenious oxide, and sulphur chloride.

(ii) Method.—Acetylene is bubbled through a mixture of arsenious chloride and aluminium chloride, the latter being a catalyst.

(c) *Commercial uses*.—None. Acetylene is of great use to the organic chemical industry for the manufacture of acetic acid and solvents. Sulphur chloride is used for vulcanising and for artificial silk. Arsenious oxide is used for making catalysts, pigments, glasses and medicines such as salvarsal.

(d) *Toxicity*.—This is a vesicant much worse than poison gas, since it is absorbed by the skin, rapidly causing death. It is also a powerful respiratory poison. It is six times more toxic than phosgene, a lethal dose being 0.05 mg/litre.

Sneezing Gases.

1. Diphenylchloroarsine ($\text{C}_6\text{H}_5)_2\text{AsCl}$. Or Sneezing Gas or Blue Cross.

(a) *Properties*.—A colourless solid melting at 44°C .

(b) *Manufacture*:

(i) Raw Materials. Benzene, sodium nitrite, sodium arsenite, sulphur dioxide.

(ii) Method.—This is an extremely complicated method and series of reactions.

(c) *Commercial uses*.—None, but all raw materials have pacific uses.

(d) *Toxicity*.—This material is sent over in shells, and upon bursting clouds of very fine particles of diphenylchloroarsine are formed. These penetrate any gas mask, which cannot stop fine particles, though it can by reaction stop gases. The subject sneezes so badly that he must remove the mask. He is then killed by other gases sent over simultaneously. In high concentrations the substance itself is dangerous.

2. Methylchloroarsene.

(a) *Properties*.—This is a liquid boiling at 132°C .

(b) *Manufacture*.—The raw materials are caustic soda, arsenious oxide, methyl sulphate and sulphur dioxide. Methylsulphate is a valuable reagent in industrial organic chemistry.

Paralysants.

1. Prussic Acid and Sulphuretted Hydrogen.

Neither of these chemicals was used much during the War. Prussic Acid is of great commercial use in fumigation. Sulphuretted Hydrogen is not used commercially, and is not deliberately manufactured. It is a by-product in certain processes, and could be very readily manufactured.

These gases are those that were found to be the most efficacious, and capable of cheap manufacture in large quantity. In fact, however, during the last war thirty different gases, and sixteen mixtures of these gases were used by the belligerents.

(3) EXPLOSIVES, AMMUNITION AND INTERMEDIATES.

From the study of poison gases it might appear that the function of explosives had become a minor one. It is agreed that the lethal process by explosives alone—by the application of energy release, and the imparting of violent velocity to metal, and thus to the body—is not so modern as is the attack of chemicals upon the lungs of man. Even so, we have shown that explosives will still be needed for the transmission of the projectile from the gun, and for the shattering of the shell case to release the gases.

In addition, however, we must make this point quite clear. Explosives are, in peace time, made in great quantities and exported to warring nations which have not yet advanced sufficiently in their civilisation to be able to control the more modern weapons of war. Thus they retain, for the purpose of this Inquiry, a greater importance than that of gases.

The manufacture of explosives covers a very wide field of chemical effort, much of which is completely free from any suspicion of interest in the supply of armaments. These factories and processes are those which deal with the manufacture of intermediates, or of materials which are near relations of those in the explosive groups.

The important explosives under review are cordite, the propellant, and T.N.T. or tri-nitro-toluene, the high explosive used for filling the shell. In addition to these we have many other industrial and military explosives, but most of them are based upon the use of some proportion of T.N.T.

The range of industries engaged in the production of chemicals which are intermediates for explosives is wide enough to embrace gas works, coke oven plants, and soap works in addition to chemical works proper, and to the factories engaged in making shell. Even so, these industries are not armament industries. After the last war there was a search for pacific uses for plant then available, particularly for T.N.T. plant, and cellulose nitrated to a lesser degree than T.N.T. is now used for a whole range of innocent materials such as laquers.

Perhaps the most important result of war research was that of the late Professor Haber of Berlin, upon whom, in consequence of the German shortage of saltpetre, fell the task of producing nitrates from atmospheric nitrogen, that great reservoir of the explosives industry. The practicability of the method has led to the establishment of a large plant in this country and as a compliment to its importance a

separate descriptive section has been allocated in our list of manufactures, to the process of ammonia synthesis.

The research made upon explosives is so complete as to make any great step forward very doubtful. It is unlikely that materials much more suitable to war purposes than cordite and T.N.T. will be discovered.

As an illustration of the type of equipment necessary for the manufacture of cordite, which, with T.N.T., is the basis of the explosives industry for war, we give a complete flow sheet of manufacture, together with quantities, from the raw materials to the finished product (Figures 8 and 9). This method of presentation serves a useful purpose in showing the co-ordination of the manufacture and use of the heavy chemicals and organics.

The raw material quantities for the production of cordite, and the intermediate industrial commodities used are shown. The details of manufacture of T.N.T. (tri-nitro-toluene) are similar, and to make the list complete for all seriously warlike uses toluene, picric acid and acetone would be the only additions. Some conception of the scale of raw material needs is shown by the figures of output of H.M. Factory, Gretna, which produced at the rate of nearly 28,000 tons of cordite per annum during 1918. The factory included in its own boundaries the whole process of manufacture of cordite from the raw materials. It was essential at that time to do so, but in post-war years our chemical industry has advanced from the 1914 level.

It would appear reasonable to assume that any efficient organisation for military purposes would base its arsenals upon the use of the intermediate reagents rather than upon the building up of an inflexible factory in which all the processes were carried through from the raw materials, unless the heavy chemical output could be sold in peace time whilst the explosive manufacture proper was in abeyance. Explosives cannot be stored in quantity over long periods without deterioration.

The regulation pre-war cordite was named M.D. Cordite. Its production necessitated the use of acetone, the supply of which had to come from overseas. R.D.B. Cordite is composed of nitroglycerin, "soluble" nitrocellulose and mineral jelly, whilst M.D. Cordite contained "insoluble" nitrocellulose or gun cotton. R.D.B. Cordite enabled ether-alcohol to be used instead of the scarce acetone, as the solvent or gelatiniser.

The R.D.B. Cordite was evolved in the Research Department at Woolwich Arsenal, and the work required to make this cordite gave the essential ballistics of M.D. so that cartridge cases, guns, etc., needed no alteration, is an outstanding success of Governmental research.

It was this cordite that was made at H.M. Factory, Gretna.

Raw material quantities for the production of 100 tons R.D.B. Cordite.

(a) Crude sulphur	...	...	tons	42.7
(b) Crude saponified glycerine	...	...	80	
per cent.	...	...
(c) Crude sodium nitrate	...	...	"	24.1
(d) Mineral jelly	...	...	"	110.4
(e) Alcohol	...	...	"	6.2
(f) Raw cotton waste	...	...	"	60.0
(g) Soda ash	...	...	"	36.0
(h) Coal (process only)	...	...	"	3.1
(i) Iron ore	...	...	"	106.1
(j) Caustic soda	...	...	lbs.	286
(k) Stassfurt black	...	...	"	69
(l) Electrical energy	...	...	Kwh.	165,000

Intermediate industrial commodities produced and used in the process.

- Sulphuric acid.
- Nitric acid.
- Nitre cake—rejected.
- Diethyl ether ($C_2H_5)_2O$.
- Refined glycerine.

Trinitrotoluene: T.N.T.

This explosive is the safest one in use as a high explosive, as distinct from cordite, which is a propellant. It is much more insensible to detonation than is picric acid, which it has largely replaced. Figure 10 shows the process of manufacture in relation to the coal gas and dyestuffs industries, and from that diagram the derivation from coal tar of both toluene and xylene (used for tear gas) makes clear the importance of the gas industry to warfare.

This industry is not of course concerned with munition manufacture, but supplies the intermediate organic materials, whilst the dyestuffs industry uses those intermediates for the manufacture of its final products.

In addition to its use as a final material, T.N.T. is mixed with other ingredients, such as ammonium nitrate, potassium chlorate, starch, wood meal, aluminium wool, resin, lead nitrate, and even castor oil, whilst D.N.T. or dinitroloene is also used as an explosive.

Quantities and cost of production.

H.M. Factory, Gretna, produced in the six months ending 29th June, 1918, 13,884 tons of cordite at an estimated value of £3,000,000 (£260 a ton, 2s. 4d. a lb.).

H.M. Factory, Queen's Ferry, produced in 1918 100 tons of T.N.T. per day, or 35,000 tons per annum.

The following table shows British manufactures of explosives in H.M. Factories during the last war.

	Tons.
Picric acid	68,500
Trinitrotoluene	238,000
Ammonium nitrate	378,000
Cordite	139,000

Notes on various explosives.

1. Black gunpowder which is omitted from our schedule has the following composition:—

	Per cent.
Potassium nitrate	75
Sulphur	10
Charcoal	15

It is now practically obsolescent for military use. The ballistic power of gunpowder is a quarter that of cordite.

2. The number of available explosives is immense, and the majority have industrial uses, particularly in quarrying and mining operations. It would be impossible, outside of a full book on this subject only, to specify them all. These explosives will vary in their ballistic power, being some safeguard against their use as military propellants, which in consequence of the necessity of standard effectiveness, are limited. Apart from propellant use, however, all of them are suitable for destructive warfare.

A few of the more important explosives are here named:—

- (1) Sodium nitrate mixtures.
- (2) Barium nitrate mixtures.
- (3) Potassium nitrate mixtures.
- (4) Ammonium nitrate mixtures (electronite, ammonite, etc.).
- (5) Chlorate mixtures.
- (6) Perchlorate mixtures (permonite, cheddite, etc.).
- (7) Nitrotohuenes (T.N.T., etc.).
- (8) Nitrophenols.
- (9) Picrates.
- (10) Nitroglycerines.
- (11) Dynamites (nitro-glycerine with various earths).
- (12) Nitro-celluloses.
- (13) Gun cotton.
- (14) Fulminates.
- (15) Nitro-starches, etc.

Commercial uses of cellulose nitrates.

It is the degree of nitration which determines the value to the explosives industry of cellulose nitrates, and there is practically no pacific use for a compound of over 12 per cent. of nitrogen. Almost any

highly purified cellulose is suitable for nitration (in other words almost any vegetation), but in practice cotton linters have been found to be the most suitable for laquers, explosives, etc., but there is no inherent improbability of wood pulp or of other pure cellulose being employed, as is the case in artificial silk.

The earliest use of cellulose nitrate was for explosives and in its more highly nitrated forms, but modern uses of lower nitrated mediums—the so-called pyroxalines, collodions, and photographic nitro-cellulose—is giving a rapidly increasing market. The range of degree of nitration is from 14.16 per cent. downwards to 11.1 per cent.

Excepting for smokeless powder, the dry cellulose nitrates have few applications.

The cellulose nitrate formulae are:—

$C_{12}H_{12}O_{12}(NO_2)_8$	— 11.1% nitrogen	} Industrial.
$C_{12}H_{12}O_{12}(NO_2)_9$	— 11.96% "	
$C_{12}H_{12}O_{12}(NO_2)_{10}$	— 12.7% "	
$C_{12}H_{12}O_{12}(NO_2)_{11}$	— 13.5% "	
$C_{12}H_{12}O_{12}(NO_2)_{12}$	— 14.3% "	

Nitro celluloses are used in the following industries:—

- (1) As laquers in all industries using protective paint coatings.
- (2) Artificial and synthetic camphors.
- (3) Paint removers.
- (4) Imitation leather and fur.
- (5) Gas mantles.
- (6) Silks.
- (7) Celluloid.
- (8) Plastics and resins.
- (9) Medical use of collodion compounds.
- (10) Photographic use of collodion compounds and many similar uses.

Intermediates for explosives.

Sulphuric acid or oleum. (H_2SO_4).

This acid is of immense importance in explosive manufacture and general industries.

It is worth while to note that this material, originally made from imported sulphur or from pyrites is now increasingly manufactured from spent oxide (gas works) and zinc concentrates. The imports and consumption are as shown in the following table:—

Imports, etc., U.K., July, 1926—June, 1927.

Materials.	Import.	Consumption.	Per cent. as sulphur.	Per cent. as sulphur in 1914.
	Tons.	Tons.		
Pyrites ...	244,000	235,000	46.3	89.0
Sulphur ...	870,750	58,000	23.0	0.3
Spent oxide ...	—	120,000	24.0	10.6
Zinc concentrates.	—	66,765	6.7	0.15

The oleum (strong sulphuric acid) output was in 1918 at the rate of 11,500 tons per annum, which was the main source of British output. In addition the plant capacity for 20 per cent. oleum in Great Britain had been increased from 25,000 tons/annum in 1914 to 450,000 tons/annum in 1918.

We are thus coming to rely on our own resources to a greater extent. The market for sulphuric acid is not an increasing one, but in this country, particularly on the initiative of I.C.I., the largest sulphuric acid plants, particularly those at Oldbury, have been extended and modernised. The plants in this country are operating at about 60 per cent. of capacity, which is a reasonable commercial load factor.

Probably 50 per cent. of the output is now used in conjunction with ammonia for fertiliser manufacture.

The increase in plant capacity which would be required in war time, would in common with the other heavy chemical industries, depend upon diversion of products and overload capacity, but there

appears to be a decline in the use of sulphuric acid of late years.

In 1930 the quantity of crude glycerine available to the explosives industry is stated in the Final Report on the Fourth Census of Production to be 256,000 cwt. as against 68,000 cwt. in 1924, an increase of 387 per cent.

Glycerine is a by-product of soap manufacture and is manufactured in the main by Lever Bros. (Capital £70,000,000.)

Picric Acid.—Phenol is sulphurated resulting in phenolsulphonic acid and nitrated by addition of strong sulphuric and nitric acids. Picrates are too dangerous to handle and relatively little would be used in future wars.

Alcohol is obtained by the distillation of the fermented wash liquor or mash of any vegetable substance. Many substances are employed, such as rye, barley, potatoes. Ethyl alcohol is required for explosives manufacture, and in the final higher boiling point distillations of potato mash, i.e., in the used oil, about 49 per cent. by weight of ethyl alcohol is found.

There was an enormous increase in the spirits manufacture for industry from 1924 to 1930, the figures being: 1924—696,000; 1930—6,284,000 proof gallons, being an increase of 900 per cent.

The Synthetic Ammonia or Nitrogen Fixation Industry.

The production of one ton of fixed nitrogen, as ammonia, requires the theoretical consumption of 480 lbs. or 92,000 c. ft. of hydrogen. One third of this volume of nitrogen is required. The production of hydrogen is simple, requiring only coal for power and water for electrolysis, or through coal to water gas. The nitrogen required for the process is obtained from air, which is composed, ignoring impurities, of 20 per cent. oxygen and 80 per cent. nitrogen, by the elimination of the oxygen or by the liquification of air.

The process results in the production of ammonia gas (NH_3) which is sold either as a gas or as liquid ammonia, NH_4OH (a solution of the gas in water), or is converted into sulphate of ammonia, or alternatively is oxidised to nitric oxide and nitric acid. This oxidation process is not economical, and would only be carried out for war purposes.

During the last war the German output of synthetic ammonia reached a peak in 1918 of 650 tonnes per day (640 tons) or 230,000 tons per annum. The United States War Department's estimate of military demand alone is 150,000 tons per annum for a first class war.

During the last war no synthetic nitrogen plants were available for the Allies, the alternative source of Chilean saltpetre being employed.

In war time nitrogen is required both for cordite and T.N.T. In peace time the main market must be found in agricultural fertilisers, as sulphates and phosphates of ammonia, though new uses are constantly being sought.

During the last war the British Government attempted to inaugurate a synthetic nitrogen plant at Billingham. The plant was not successful and was afterwards sold to Messrs. Brunner Mond & Co. (later I.C.I.). Researches and inspection undertaken by the Inter-Allied Commission in Germany with Brunner Mond personnel (Col. Pollitt, for example) resulted in further knowledge, and after the setting up of semi-technical scale unit at Billingham, a pilot plant was installed at the Castner Kellner Alkali Co., Runcorn, which was put into commission. Upon the data thus obtained, the great plant at Billingham was designed and brought into successful operation.

The Billingham and Runcorn plants are the only plants in Great Britain working on ammonia synthesis, though it must not be overlooked that ammonia is a by-product of gas manufacture, and that there is a larger output from that source than from synthesis.

At the time that the plant at Billingham was designed most technicians in the industry were of the opinion that the magnitude of the proposed production was on a scale far too ambitious, and their view has been substantiated in practice. It would appear that a mistake in policy was made, as it is difficult to envisage in what way the Government could subsidise the plant equipment from loss in order to have the available capacity.

The plant is at present producing at the rate of 300 tons per day or about 110,000 tons per annum, but it is capable of increasing this output by about 100 per cent.

In common with most of the newer chemical processes, the chief raw material is coal, and very expensive plant, capable of withstanding high temperature and pressure is called for, linking up this and similar processes with the demand for heavy steel forgings such as are required for heavy armaments.

War-time capacity.

Fortunately, or otherwise, plant capacity in this case is great enough to meet an increased demand of 100 per cent. without additional plant requirements.

Nitrogen fixation plant costs.

The water gas process is that usually employed, and these figures are based upon that process for the fixation of 40,000 tons N_2 (Nitrogen) per annum, which plant size is as small as an economic unit should be.

Division.	£
1. Gas Manufacture	620,000
2. Compression and Purification	640,000
3. Complete Synthesis plant	575,000
4. Plant facilities and services	920,000
Total	2,755,000
Cost per ton N_2 per annum	69

A similar plant, but based upon the electrolytic production of Hydrogen would cost:—

Division.	£
1. Gas Manufacture	286,000
2. Compression and Purification	232,000
3. Complete Synthesis plant	490,000
4. Plant facilities and services	870,000
Total	1,878,000
Cost per ton N_2 per annum	47

The probable cost of the ammonia synthesis plant at Billingham, excluding the other industries situated there is £12 million, the plant as a whole costing about £25 million. The smaller units might be termed "of strategic size".

The increase in manufacture of ammonium sulphate possible consequent upon the Billingham extension is shown in the following table from which it will be seen that the output has increased by 8½ times.

	1930.		1924.	
	Quantity	£	Quantity	£
Sulphate of ammonia	Tons 351,700	2,120,000	Tons 41,000	498,000

From "Fourth Census of Production (1930)" Part III, 1934.

The Gas Works supplies (Toluene).

A properly organised Towns' Gas Works is also a chemical works in the strict sense of that term, the by-products of gas manufacture being recovered and sold, these by-products being quite as important as the supply of gas is to the balance sheet of the industry. Some of the by-products are:—

Sulphate of Ammonia.
Muriate of Ammonia.
Carbolic Acid.
Benzol.
Toluol.
Xylol.
Naphtha.
Naphthalene.
Anthracene.
Creosote; etc.

Amongst these products will be seen Toluol and Xylol, the former necessary to the manufacture of T.N.T., and the latter for lachrymatory gas. These materials are available from most of the gas works and of the coke oven plants in this country, and the available quantities are very great, 493,000 gallons of Toluol being produced in 1930.

Small Arms Ammunition.

It is necessary to consider the manufacture of small arms ammunition under a survey of the chemical industry because, firstly the manufacture of the cases is practically automatic, and not an engineering matter, and secondly, because the chemical industry does in fact control this manufacture.

There is a considerable difference in the manufacturing methods for shell cases, etc. and rifle ammunition. The former are usually of steel and up to 6" diameter can be turned on practically any lathe in the country, as was shown in the last war. Rifle ammunition manufacture is a completely automatic process in which brass strip, without further handling passes through all operations to the finished case, and is even automatically gauged for accurate manufacture, non-standard cases being rejected.

It is advisable that the process of filling and finishing should be concluded in the same factory where the cases are manufactured, though it is not strictly essential, and the separation of this automatic production task is not proposed for separation from the explosives industry.

The actual manufacture of the major portion of the small arms ammunition in this country is carried out by I.C.I. Ltd. through its subsidiary company I.C.I. (Metals) Ltd., and mainly at the Kynoch factory.

This factory operates in conjunction with others of the same group to produce a variety of non-ferrous metal plates, strip, tubes and wire, even the manufacture of the famous "Zip" fastener being in the same works area.

The cartridge works is contiguous to the others, and the factory produces sporting ammunition in addition. Sporting ammunition is mainly for shot guns, and the whole process of manufacture is completely different from that of rifle ammunition. Compressed paper forms the barrel of the shot gun cartridge, and even a printing works is attached to the plant which in addition to other works prints the paper for shot barrels.

There are many co-called "manufacturers" of ammunition, but in fact there is only one supplier worthy of the name of "manufacturer", and that is I.C.I. Ltd.

It is claimed as essential to any control of the arms industry that small arms ammunition manufacture be state controlled. The necessity for this is shown in the following table.

Small Arms Ammunition (including empty cartridge cases).

Type.	Year.	Value.	Exports.	Exports.	Increase in Exports since 1924.
		£	£	Per cent.	Per cent.
Military	1930	379,000	192,000	50.6	32
	1924	422,000	162,000	38.4	
Sporting	1930	658,000	293,000	44.5	—
	1924	712,000	462,000	64.9	

From this table it will be seen that though the production value of military ammunition has been reduced by about 10 per cent, the exports have risen by 32 per cent. from 1924 to 1930.

Considerations involved in assumption of State Control.

The automatic machines used for military ammunition are intricate and costly, and whereas shell can be produced in any engineering shop, the mechanism for the smaller ammunition needs special manufacture. It is probable that these machines could be installed, and a factory be operating under war conditions in about six months, if plans were already prepared.

The difficulty of taking over this portion of the chemical industry with the explosives section only, under state control, is that the plant at present exists in the centre of a general works, and could not be efficiently operated as a separate organisational unit under the same roof. It would therefore be necessary to transfer both machines and labour to a separate factory, unless the control of the chemical industry was adopted.

The manufacture of small arms ammunition is not an essential part of the general scheme of I.C.I. organisation and could well be separated from the rest.

(4) THE EXISTING ORGANISATION OF THE CHEMICAL INDUSTRY.

Chemical factories, especially dyeworks and factories connected therewith, can be very quickly adapted to the manufacture of poison gases. In the dyeworks many of the intermediates are themselves lethal chemicals, which are capable of immediate use in chemical warfare, whilst others are intermediates for the manufacture of chemical warfare agents. A survey of this problem is given in records of Sub-Commission "A" of the Reparation Commission of the Disarmament Conference.

In addition to these questions of potential, we have to be cognisant of the fact that part of the industry is now taking great profits, not from their potential war utility, but from their present supply of explosive material.

Since it is the duty and purpose of the Royal Commission to report on the methods of control to be recommended either by nationalisation, inspection, licensing or other means, it is therefore essential to consider the possibility of separating the armaments side of this industry from its general industrial side.

Our problem will therefore be to separate (1) those industries supplying direct war material; (2) those capable of immediate interchange to war material; (3) those supplying intermediate products to existing armament firms; and (4) that part of the chemical industry which is only indirectly related to warfare production.

After consideration of these matters, the practicability of control will be discussed, and the problem is here complicated by the widespread control of certain of the large firms, who are at present engaged in producing explosive and pacific materials. Control may demand a spread to include sales services

to the pacific industries of relatives of explosives, and in such cases as glycerine production to the control of soap factories, which are essentially suppliers for pacific uses.

That being the case, the present organisation of the industry will require careful consideration before any practicable proposals can be matured.

Consideration of this structure should be preceded by a study of a work entitled *A History of the British Chemical Industry* by Stephen Miall (Ernest Benn. 1931). A concise story of the industry is here presented with authority, and the diagrams (Figures 11 and 12) show its past and present organisation, in the branches of heavy chemicals and dyestuffs.

In its widest scope the industry may be classified as follows:—

- I. Heavy chemicals.
- II. Dyestuffs.
- III. Explosives.
- IV. Drugs and fine chemicals.
- V. Cellulose.
- VI. Metallurgy.
- VII. Gas, coke and tar.
- VIII. Paints and varnishes.
- IX. Soap.
- X. Miscellaneous products, such as:—
 - (a) Cement.
 - (b) Plastics.
 - (c) Matches.
 - (d) Water softening.
 - (e) Linoleum.
 - (f) Paper.
 - (g) Salt.
 - (h) Glass.
 - (i) Electrical accumulators.
 - (j) Margarine.

Of these, heavy chemicals, dyestuffs and explosives come strictly within the limits covered by the work of the Commission. The fermentation industry supplies industrial alcohols in quantity, but that is a minor part of its duty, and the ramifications of the manufacture and sale of beverages is its major purpose. We will therefore not consider it in detail.

In the drug and fine chemicals branch there is some war potential, but it is as yet minor, and it is supplied with its intermediates by the heavy chemicals industry. Some of its factories are however engaged in the production of stannichloride, a chemical warfare agent, and such activities must come within our scope.

The cellulose industry, in those branches that are connected with gun-cotton and cordite, collodion, celluloid, etc., are without our purview, whereas those branches engaged in the production of artificial silk are inextricably connected with the textile industry.

Metallurgy is a practice of science with metals and apart from the chemical knowledge imparted thereto and the use of heavy chemicals, is a more fitting study for control in the engineering branch of industry.

Gas, coke, and tar are vital commodities in the production of poison gases and of explosives. The industry does not produce those finished materials for sale, nor is it in any financial link-up with the heavy chemicals organisation, selling its products through its central agency. The vast aggregate capital and the organisation of service to a huge consumption market, tends to outweigh its possibility of control within the terms of reference of the Commission. It must of course receive some consideration when co-ordination and licensing are under review.

Paints and varnishes are only partly co-related to armament production. In its lacquer branch it uses nitrated cellulose, in some cases manufactured in its own works and in others purchased as an intermediate. Consideration here therefore must be in the direction of control of manufacture or supply. Certain firms solely engaged in paint manufacture may be allowed to continue manufacture of nitrated cellulose, whilst others, operated by armament concerns, may be required to be placed under state ownership.

The soap industry is the supplier of glycerine for T.N.T. manufacture and for other peaceful purposes. The glycerine is a by-product and is not nitrated by the industry, which is primarily pacific in character, and has a total capital of probably £100 million of which £70 million is that of Lever Bros.

Left for our immediate consideration therefore, we have

- (1) Heavy chemicals.
- (2) Dyestuffs.
- (3) Explosives.
- (4) A portion of the "Fine Chemicals".
- (5) A portion of "Cellulose".
- (6) A portion of "Paints and Varnishes".

We believe that it will be generally agreed that we have not attempted in the foregoing analysis to widen unduly the scope of that part of the industry requiring consideration.

Now let us see who are the major firms engaged in these industries.

Heavy Chemicals.

- (i) Imperial Chemical Industries Ltd.
- (ii) Charles Tennant & Co. Ltd.
- (iii) Spencer Chapman & Messel.
- (iv) The Sheffield Chemical Co. Ltd.
- (v) W. Blythe & Co.
- (vi) F. W. Berk & Co.

Dyestuffs Industry.

- (i) Imperial Chemical Industries Ltd.
- (ii) Williams (Hounslow) Ltd.
- (iii) Charles Tennant & Co. Ltd.
- (iv) British Alizarin Co.
- (v) The Mersey Chemicals.
- (vi) Oxley Hird Ltd.

Explosives Industry.

- (i) Imperial Chemical Industries Ltd.
- (ii) Vickers-Armstrongs.
- (iii) H.M. Government.

For the sake of brevity, the lists are not complete, and the minor branches are unspecified, but it can be stated that except for fine chemicals, I.C.I. dominates the chemical industries quoted, though in paints and varnishes it is probably second in its use of nitrated cellulose to Messrs. Pinchin Johnson, who manufacture paint.

Some idea of the scope of the products is given in the following schedule of manufactures, which relates to the productions of I.C.I. in which prominence is always given to pacific products, and from which it will be seen that no mention is made of explosives and ammunition probably as a matter of policy.

The large number of products manufactured by I.C.I. companies make it possible to give only a brief list, of which the following are the most important.

Acids

Acetic
Benzoic
Chloroacetic
Formic
Hydrochloric
Muratic
Nitric
Oleum
Sulphuric

Aluminium Chloride (Anhydrous)

Ammonia

Anhydrous
Liquor (all strengths)

Ammonium Bicarbonate

Ammonium Carbamate

Ammonium Carbonate (Lump and Powdered, B.P. and Neutralising Qualities)

Ammonium Chloride

Fine white, granular
Grey Galvanisers crystals
B.P. Standard
"Dog Tooth" crystals
Sublimed Salammoniac
"Salamac"
"Voltoids"

Ammonium Nitrate
Ammonium Sulphate
Ammonium Sulphite
Benzoate of Soda
Benzoic Acid
Bicarbonate of Soda

Refined and Recrystallised B.P. Standard (All grades of fineness)

Mineral Water Quality

Bisulphite of Soda
Bleaching Liquor
Bleaching Powder, 35/37 per cent.
Bleaching Powder, Tropical Quality
Burnt Pyrites
Calcium Bisulphite
Calcium Carbonate
Calcium Chloride
Solid, broken, flake
Calcium Superphosphate
Carbon Bisulphide
Cattle Lick
Caustic Soda

Solid, flake, and liquor, all strengths
"Chemic"

Chloroacetic Acid
Chloride of Lime

Sanitary
"Staboclor"

"Chlorosene"

Chlorine (Liquid)
Chloroform B.P. Standard

"Chloros"
Chlorosulphonic Acid
Collodion Cotton
Collodion Solutions
Copper Cyanide
Copper Hydroxide
"Crex"

Dibutyl Phthalate
Dichloroethylene
Disinfectants
Dyestuffs
Ether (Methylated)
Ethyl Chloride
Ethylene Glycol

Ether
Ferrie Chloride (Liquid and Solid)
Ferrous Chloride
Fertilizers

Fluosilicate of Soda
Formic Acid
Fur Bases

"Galvene"
Glauber's Salts

Hexachlorethane
Hexachloronaphthalene ("Seekay" Wax)
Hydrated Lime

Hydrochloric Acid

All usual strengths including B.P. Standard

Hypochlorite of Soda
Hyposulphite of Soda (Sodium thiosulphate)
Commercial and photographic

Insecticides
Intermediates for Dyestuffs

Lead Nitrate

Lead Peroxide

Lead Sulphate

Lead Sulphide

Leather Oils

Lime

Burnt. All qualities

Hydrated

Lime Mud or Waste

Limestone. All grades

"Marvelite"

"Maxo"

Methanol

Methylated Ether
 Methyl Chloride
 Methylene Chloride
 Monochloronaphthalene
 Nitric Acid (all grades and strengths)
 Nitro-Chalk
 Nitro Cotton (Industrial)
 Ochres
 Oleum
 Paints and Varnishes
 " Pearl Dust "
 Pentachlorethane
 Perchlorethylene
 Phosgene
 Photographic Chemicals
 Potassium Cyanide
 Purple Ore
 Pyrites
 Pyroxilin
 Resins (Synthetic)
 Rubber Accelerators
 " Salamae "
 Salammonic
 Salt
 Rock, Ground
 Rock, Lump
 White (all qualities)
 Saltoake
 " Seekay " Soil Fumigant
 Sesqui Carbonate of Soda
 " Shirilan "
 Silicate of Soda (all grades)
 Soda Ash
 Light, heavy and special heavy
 Soda Crystals
 Various forms
 Sodium Metal
 Sodium Salts
 Bicarbonate
 Bisulphite
 Carbonate
 Chloride
 Cyanide
 Formate
 Hydrate
 Hypochlorite
 Nitrate
 Nitrite
 Perborate
 Peroxide
 Silicate
 Sulphate
 Sulphide (various forms)
 Sulphite
 Thiosulphate (various forms)
 Sodium Potassium Cyanide (Double Salt)
 " Speddo "
 Spent Oxide
 " Staboclor "
 Stannic Chloride
 Stannous Chloride
 Sulphate of Ammonia
 Sulphur Candles
 Sulphur, Ground
 Sulphur Dichloride
 Sulphur Dioxide (Liquid)
 Sulphur Monochloride
 Sulphuric Acid (all strengths and grades, including
 B.P. Standard)
 Sulphurous Acid
 Sulphuryl Chloride
 Superphosphates
 Tetrachlorethane
 Trichlorethylene
 Vitriol
 " Voltoids "
 Waste Acid
 " Westrosol "
 " Yarnite "
 Zinc Chloride
 Zinc Cyanide
 " Zinkams "

It will have been noted that in every phase of the industry, the name of Imperial Chemical Industries is quoted constantly. This firm is in fact

in a controlling position in the chemical industry. In heavy chemicals, explosives and dyestuffs it is almost absolute, though firms such as Charles Tennant are of great size, but in fine chemicals it is the main supplier to the trade of the necessary intermediates. Some indication of this position is given in the diagrams showing the evolution of the heavy chemical and dyestuffs industries, and the same story can be told of explosives. Some few years ago the names of the firms engaged in the industry as major operators would have been increased by at least ten times.

I.C.I. is in the main a horizontal trust, with exception to its metals branch (I.C.I. Metals Ltd.) which deals in copper and similar non-ferrous metals, the making and filling of small arms ammunition. This branch is really a " carry-over " from the Nobel interests into the amalgamation.

It was obviously necessary to the chemical industry that this organisation should be formed so that the various branches would be able to exchange intermediates on a cost basis, and obviate the competitive manufacture of similar reagents on wasteful lines, as many processes were patented, and competitive manufacture resulted in great losses by the retention of inadequate processes. From the national point of view it can be stated that I.C.I. has organised and re-equipped the industry. The scope of the organisation is increasing constantly. Recently another large chemical firm, the Chemical and Metallurgical Corporation was purchased. The manufacture of oil from coal is a recent development carried out in I.C.I. by the hydrogenation process.

The industry is interlocked to a great extent by sales agreements and in some cases has common research organisations. The importance of the detailed examination of these sales agreements by the Commission has been already stressed, but it will be emphasised again.

The value of the industry in terms of capital, including heavy chemicals, dyestuffs, drugs, fertilizers, soaps, explosives, artificial silks and those parts of the gas works and coke oven plants engaged in by-product recovery is of the order of £300 million and about 170,000 workers are employed.

Messrs. Lever Bros. and I.C.I. together account for one half of the total. The commercial returns upon capital can be assessed from the balance sheets, accepting 6.8 per cent. dividend for example, in the case of I.C.I., or alternatively one can analyse the true situation, and find that obsolescences are often unduly low, and that the profits made are to a considerable extent from the explosives group. Balance sheets of the individual I.C.I. groups are not shown in the Annual Report. Thus, though I.C.I. is not primarily an armaments firm, yet, by force of circumstances (or of good salesmanship) its profits depend very greatly indeed upon the sales of high explosives and ammunition of which huge quantities have been exported to the Far East.

The position of the industry is not completely stable. Research now makes possible changes in technique such as that in the displacement of chlorine from the manufacture of artificial silk, which changes can upset the balance of the industry. Chilean saltpetre is again competing with synthetic fertilizers and reducing their output.

The safety of the industry does therefore depend upon a wide control of many processes, in order to minimise the effects of such reactions, and the more effective the organisational control is, both in management and in sales agreements with the ancillary industries, the more stable it will become.

This survey brings out clearly the fact that the lethal substances and the explosives section of the industry can, with the exception of the type of products mentioned, be separated from the general body of the industry on its technical side. Such, however, is the horizontal and vertical nature of this great chemical combine that no analogy can be made as far as the very important financial aspect of the problem is concerned. However, the financial side could be separated by special government enactment

rather by nationalising or placing government controlled companies in charge of the armaments section. It is essential that this control should be extended to the sales side as well as that of manufacture.

(5) THE INDUSTRY OF DEFENSIVE MEASURES AGAINST GAS ATTACKS.

In view of the great attention which is now being paid to the question of defence against gas warfare, it has been thought fit to add a short chapter on the production of the gas mask, which will undoubtedly be one of the methods advocated.

The gas mask is the normal means of protection against poison gases, and although it is not a perfect means, yet it is certain to be used in any attempt to protect the population or the armed forces.

It is not possible to evolve an efficient gas mask unless it is of the canister type. By that is meant that gas masks equivalent to the old P.H. Helmet (that is, textiles saturated with chemical) do not give any adequate protection, and it is necessary to have a canister type of mask which will embody wire and felt screens, and a container filled with activated carbon and a small quantity of chemical reagent.

These gas masks, of the type used as standard for industrial operations and for war purposes, are manufactured by Siebe, Gorman & Co. and are normally retailed to industrial buyers at £2 7s. 6d. each.

The apparatus may be divided into two portions, (1) the mask and inducing pipe, and (2) the canister.

It is quite possible to manufacture the canister, wire gauzes, felt, etc. in adequate quantities for the whole of our population with very short notice indeed, but the filling medium for the canister, about 98 per cent. of which is activated carbon, cannot so readily be manufactured. We calculate that the filling for 45,000,000 canisters would require 10,000 tons of activated carbon.

During the War there was a shortage of this material. The best raw material for the manufacture of activated carbon was found to be coconut shells, but it was found possible, towards the end of the war, to activate carbons of the anthracite type with a reduction in effectiveness to one-third or one-quarter of that of the carbon made from coconut shell. This better material was eked out in the proportion of one-third coconut shell carbon to two-thirds anthracite carbon in American gas masks.

Activated carbon has the property of absorbing poison gas to a tremendous extent in relation to its volume, and the small quantity of reagent used in conjunction with it would vary according to the types of gases met with. This chemical reagent (whatever it might be) could undoubtedly be manufactured in sufficient quantities.

It is not possible to calculate the renewal rates of these canisters. The absorption rate of the carbon is well known, but the actual amount of gas with which the canister has been in contact is not known, and replacements must be by rule of thumb or time period methods.

If we presume that monthly changes of canisters were found to be necessary, a total quantity of 120,000 tons of activated carbon would have to be manufactured per annum, and this is an undertaking that calls for high technical skill and knowledge which could only be carried out by government organisation.

The quantity of rubber necessary to make the inside lining of the gas mask and the tube itself would be of the order of 10,000 tons for 45,000,000 gas masks, and that quantity of pure rubber could undoubtedly be secured.

It is absolutely necessary in any attempt to protect the population by means of gas masks to provide an efficient type, and not to leave the population subject to the advertising genius of irresponsible and unscientific manufacturers of makeshift apparatus.

It is an appalling thought that if gas mask protection is left to commercial enterprise money will be able to secure efficient protection, whilst those

without worldly wealth would be left to inferior equipment.

Any scheme of defence against gas will undoubtedly involve the production of a vast quantity of gas masks. In our opinion the Government should have the monopoly of such production so that profiteering in the supply of materials considered effective in certain circumstances of gas warfare should be eliminated.

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CHAPTER 4.

THE AIRCRAFT INDUSTRY.

The aircraft industry is likely to present the most important aspect of the war preparations of the future. The *Manchester Guardian* editorial of May 24th, 1935, well describes it in the following:

"The aviation industry has now become an armaments trade and little else. Up to this year it was producing in England only a few hundred civil 'planes a year. Its main work has always been predominantly military. Most of the 234 machines and 409 engines it exported in 1933 (the last year for which we have a record) were destined for military service. Now, under our new programme, the military function becomes overwhelmingly the chief one. More new military aeroplanes (1,500) are actually to be produced this year than the whole of the civil fleet at present in existence—1,200 aeroplanes, a figure which includes sport and

pleasure craft of all ages and sizes. The manufacturing side of the air industry thus becomes little but an enormous war arsenal."

(*Manchester Guardian*, May 24, 1935.)

Like the other branches of the armament industry, the aircraft industry is closely allied with ordinary commercial enterprises. It has its connections with the motor car and small boat industries and depends for high grade materials on firms engaged in producing heavy armaments.

The development of the aeroplane is very dependent on the work of state research and experimental establishments and the direction of the Air Ministry with which the firms work in constant contact. Its work is mostly one on government contract to fairly full specification and under detailed regulations and supervision. It risks little of its own in experimental effort. The Ministry appears to follow a deliberate policy of keeping all its bigger and older units alive. This factor makes its position very different from that of ordinary competitive commercial enterprise.

The following is an account of how an aeroplane is constructed, the firms which manufacture them and what is the market at home and abroad for aeroplanes.

Aeroplane construction.

The aeroplane divides naturally into two parts, the power unit and the airframe. The relative cost of power unit and airframe depends upon the power/weight ratio of the aeroplane. On a rough average for military aircraft they are about equal.

The power unit.—The engine, the most important part of the power unit, has commonly been built by firms building motor cars, or closely associated with them. They are of two categories: the water-cooled, which is the type almost universally used in cars, and the air-cooled, the type generally used in motor cycles. In this country the water-cooled engine has been exclusively built by motor manufacturers—for example, Rolls Royce, now the sole survivor in the field—while the air-cooled has been built both by firms which make airframes (Bristol, Blackburn, de Havilland) and by motor car manufacturers (Armstrong Siddeley and Napier). The air-cooled is more quickly and cheaply produced, less vulnerable and better in maintenance, but the use of water-cooling has conduced to a faster aeroplane. Competition has so far led to no decisive conclusion, but the air-cooled is strongly in the ascendant now, and may in time give as high speed as the water-cooled.

The aero-engine assumes very different forms from those of the car engine; it requires more refined design to secure lightness; but the basic design and construction are the same as that of the motor car engine. Development of the one engine leads generally to the development of the other. The main difference in production lies in the much smaller demand, while in design close collaboration with aeroplane designers is desirable.

The power unit includes the airscrew, a specialised part made generally by airframe (aeroplane) constructors, or by specialised firms. It is built of hardwood (black African walnut or Honduras mahogany), of sheet steel (hollow blades), or of duralumin or magnesium alloy (solid blades). The light alloy blades have been growing in favour. The Fairey Aviation Co. specialises in this line (under patents of S. A. Reed, of U.S.A.).

The airframe.—The airframe consists of fuselage and undercarriage, wings and tail unit. The earlier construction employed light (soft) wood (best spruce) for members in flexure or compression, and piano wire and stranded steel cable for members in tension.

Swaged steel wires have replaced cable and piano wire, except for control cables, which, however, seem likely to go out of use; exposed wires are of lenticular section to reduce wind resistance. Metal has nearly replaced wood, in the form of very thin corrugated high tensile steel strip, riveted together to form, generally, a tube. Some aeroplane constructors have specialised in this steel strip construction and supply other constructors with components (e.g., Boulton and Paul). Rather expensive machinery is required

for rolling and rivetting the strip, but in mass production steel components are cheaper than wood; they are also lighter and metal aircraft have a longer life.

The covering (cowling) of the engine is beaten to shape by eye, an expensive process which would obviously be replaced by pressing by machine if production were large enough to warrant the capital outlay.

Radiators, tanks, piping and wheels are similar to the corresponding motor car components. The undercarriage has to serve the purpose of the corresponding parts of the motor car in riding over very rough ground and also to absorb the shock of impact on alighting. Simple springing has therefore been supplemented generally by a gun recoil type of mechanism, a product of the constructor of the aeroplane.

The structural design of the airframe has an affinity with structural engineering (e.g., bridges), which disappears in production. It has little connection with motor car chassis design, the scales of construction of aeroplane and car are, however, similar and the details of accommodation of occupants and installation of power unit are much the same. There is, in fact, a fairly close relationship between the production of the aeroplane and that of the motor car.

The sea (or water) plane introduces a connection with the speed boat. In place of wheeled chassis we have a hull (or pair of floats), which sustains the craft on the water, and by virtue of a stepped bottom causes it to plane over the surface above a certain speed and so travel fast with a relatively low expenditure of power until it can be air-borne. The construction of these parts is a specialised job, in which yacht and motor boat builders have played a big part (e.g., Saunders, of Cowes). Originally hulls and floats had wood frames and wood skins, but metal construction has now been successfully developed. These components are now built by aeroplane constructors who specialise in seaplanes (Short Bros., Blackburn Aircraft, Saunders-Roe, Supermarine). There is therefore a close relationship between aeroplanes, motor cars and motor boats.

Raw materials, components and accessories.

The raw materials of construction are high grade products. They include:—Carbon steels, containing carbon and manganese; alloy steels, and stainless steels, containing carbon, manganese, nickel and chromium; aluminium and magnesium alloys, containing copper, manganese and nickel, such as duralumin, Y, and R.R. alloys; bronzes, etc. High tensile steels are supplied in bar, in thin strip, in thin gauge tubes, of round and oval section, and swaged wires. Tinned sheet steel is required for tanks; brass tubes for radiators. Aluminium is supplied in sheets for covering; also for castings. There are about a hundred specifications for metals. Other materials are timber, spruce, mahogany, plywood; linen sheet and thread and tapes; dopes and varnishes and paints.

Components include wheels, tyres and brakes (incorporated in the wheels); steel tension members and fittings; radiators.

Accessories are:—Magnets, carburettors, accumulators, dynamos, lamps, flying instruments for the dashboard (e.g., air-speed, aneroid, revolutions indicator, compass). Among special accessories we find turn indicators, automatic pilots and other gyroscopic directing instruments, and radio equipment.

It will be seen that the industry is largely fed by the high grade steel and light alloy industries and that it also consumes linen. The use of linen and dopes seems likely to decline with increasing use of light alloy coverings. Its dependence on timber supplies has very much declined. It consumes cellulose products in dopes and paints, and rubber in tyres and tubing.

In the components and accessories there are many links with motor car production and connections with the scientific instrument industry and wireless industry.

Warlike accessories.

These consist of machine guns, bomb racks, gun-sights and bombing sights and are largely supplied by armament firms such as Vickers-Armstrongs, though there are other smaller firms which specialise in air armament, for example, Nash & Thompson, Ltd. (now incorporated in the Parnall Aircraft, Ltd.).

Research and technical development.

The aircraft industry is in a state of rapid technical development with a small output in relation to its experimental efforts. The Royal Air Force provides its principal market. The Air Estimates for 1933-34 show a total vote for "technical and warlike stores" of £7,203,000, of which 19 per cent. (£1,385,000) is for experimental work. The volume of production includes exports which in 1933 totalled £1,466,000. Including this, the ratio falls to 16 per cent., but part of the exports will be civil planes. The ratio of experimental to production work for civil aircraft will be lower but the total value is relatively small. It cannot therefore be far from the truth to say that the cost of progress lies between 15 and 20 per cent. of the total cost of progress and supply, or that experimental work costs about a fifth of the cost of production for service. This is of course partly due to aeroplanes being primarily armaments.

The experimental work is done about half and half (in cost) by the private industry and by public service. The industry builds all experimental aeroplanes and engines, mostly at public expense. This work is naturally less profitable than production orders. For the smaller classes of war planes it is usual to have competitive models built to a common specification by a number of contractors. The fortunes of firms swing to and fro with their success or failure in these competitions; the single-seater fighters at one time supplied by Armstrong Whitworth and Gloster are now supplied by Hawker; but aeroplanes are produced by other than the designing firms.

The industry has produced in the last ten years about 160 experimental aeroplanes, of which roughly one third have been adopted as pattern for equipment. The industry does little research. Six firms have small wind tunnels, but this number is likely to be increased in the near future. Short Bros. have a tank and Vickers (Aviation), Ltd. and Supermarine have access to the large Vickers tank at St. Albans. The industry's wind tunnels are much used to give guidance in design, but they are rather penuriously staffed and therefore liable to misuse.

The major aeronautical laboratory is the Royal Aircraft Establishment, covering almost every aspect of research into technical improvement; aerodynamics, engine, structural, material, instruments and radio. It has now five wind tunnels, one of which is large enough for full size tests; a tank for testing seaplane models; and a high altitude test chamber. The second laboratory is purely aerodynamic and is the section of the National Physical Laboratory. It has eight wind tunnels, of which one circulates air compressed to a high density which reproduces full scale phenomena with a reduced scale model. Some research is conducted with seaplanes at the testing station at Felixstowe.

The expenditure on the Royal Aircraft Establishment is of the order of half a million pounds a year, of which about one-third is classified as "research" and two-thirds as "technical development." It contains the Airworthiness Department, responsible for framing regulations and methods of computing strength and safety. At one time it largely duplicated the firms' calculations, but most firms, and all the Air Ministry contractors, are now "approved" and their calculations accepted. Contact between the Ministry Aircraft Establishment and industry is maintained by Resident Technical Officers.

The Royal Air Force has testing stations, with partly civilian staff, at Martlesham Heath and Felixstowe in Suffolk. Aeroplanes for the Air Force are

thoroughly tested and their performance carefully measured. Civil Aircraft pass some simpler tests for their airworthiness certificates.

Patents.

Attention must be drawn to the question of patents which, in a comparatively new industry, are important.

Patents are commonly taken out in the names of a specified person or persons (generally regarded as the real inventor/s) and the company for which he works. The company in these cases reaps the lion's share. Inventors in government service must inform and assign all rights to the department. They receive permission to take out a patent which is in fact taken out for them if the invention is of sufficient value to the Air Force. Where possible the Ministry grants permission for commercial and foreign exploitation to the inventor, reserving the right of user by Home and Dominion Governments, but 45 per cent. of the proceeds of sale or royalties must be paid to the Department.

Development.

The aeroplane was created by private enterprise. An experimental state factory was evolved by the War Office out of the Royal Engineers Factory, dealing at first with balloons and later with airships and finally with aeroplanes and engines. Its work was purely experimental up to the outbreak of the War. Twenty aeroplanes were sent overseas in August, 1914, and of those thirteen were the products of the factory. Further supplies were provided partly from the products of private firms, partly by putting the factory designs out to contract, and partly by the production at the Factory. The Factory attempted to fill the role of adviser and supervisor to private manufacturers, which aroused some resentment, although in general private designers have been ready to acknowledge a debt to its work.

After some two and a half years, design of aeroplanes and engines by the Royal Aircraft Factory was stopped and this change of policy has remained unaltered. The industry is certainly opposed to any competition by a state factory and probably feared the creation of a state monopoly of manufacture of military aircraft. The Royal Aircraft Establishment, as it is now called, has since played a large part in "scientific research and technical development." It has a relatively large design staff and industrial personnel and workshops but is not equipped with machinery for modern aeroplane production.

During the latter part of the War three National Aircraft Factories were set up at Croydon, Liverpool and Manchester, and were working early in 1918.

Aeroplane construction companies were founded by and bore the names of pioneers of experimental flying—A. V. Roe, T. O. M. Sopwith, C. R. Fairey, F. Handley Page and the brothers Eustace, Oswald and Horace Short. War pressure created a large industry. War planes and the technique of their use hardly existed in 1914 and were highly developed by 1918. Pre-war firms became large prosperous concerns and new firms were founded, while production overflowed into the motor car and furniture industries etc. The War left an excessive number of units for peace time production. Aircraft firms tried to carry on with other work. Some were wound up and reconstructed. The Sopwith Company became H. G. Hawker Engineering Co. (in memory of the late chief pilot of Sopwith's); the de Havilland Company struggled into existence out of the Aircraft Manufacturing Company, producers of "D.H." aeroplanes. There has been subsequent "rationalisation"; Vickers Ltd. has bought the Supermarine Aviation Works, Hawker Aircraft (1934) has bought the Gloster Aviation Co. and the Armstrong Siddeley Development Co. (controlling Armstrong Whitworth Aircraft) has bought A. V. Roe & Co., Sir A. V. Roe joining Saunders of Cowes. Some amount of technical co-ordination has accompanied financial changes.

Note on Airship Production.

The biggest production of airships has been that of the Zeppelin Company in Germany. The Goodyear Zeppelin Corporation of the U.S.A. was still building airships in 1933. Airships were built in this country by Vickers Ltd., Beardmore, and Armstrong Whitworth & Co. to the order of the Admiralty, but we have never had a distinct airship industry, except perhaps for the *short-lived Airship Guarantee Co.* 1925-1930), a subsidiary of Vickers Ltd. We abandoned airships in 1921, after the disaster to the R.33, to return in 1925 with the construction of two huge airships, one by contract with the above-mentioned *ad hoc* company and one in the Air Ministry's works at Cardington, Bedford. We again abandoned airships in 1930 after the R.101 disaster, but the Cardington works are kept under care and maintenance.

The Markets: Distribution of sales.

The Royal Air Force provides the principal market for the products of the industry. The vote for aeroplanes, seaplanes, engines and spares for 1934 was £5,955,000* and for the previous year £5,736,000. Statistics for the trade in civil aeroplanes are not available. The number of aeroplanes on the civil register now approaches half the number of planes in the Air Force, Reserve and Auxiliary Force; but very many civil planes are cheap light planes and the rate of replacement will be slower. The present rate of production of other-than-regular-transport civil planes is about 250 a year at an average price of £1,000.† Imperial Airways Ltd. had a fleet valued at some £650,000 (at cost) in 1933; in the same year its expenditure on aircraft was £146,000 and provision for obsolescence £172,000; in 1934 the figures were £31,000 and £191,000; in 1932 the amount spent on "additions to fleet" was £370,000.

The total home demand for civil aircraft at present is probably of the order of half a million pounds per annum. Statistics of the export trade are given at the end of this chapter. No distinction between military and civil supplies is available. The figures for 1933 are much the same as the average for the ten years 1924 to 1933. It will be seen that we have exported on the average 270 aeroplanes at an average price of £1,900 (with engines), 500 engines at an average price of £850, and £570,000 worth of spares, the total value of exports of aeroplanes, engines and spares, being about a million and a half. Most of this is presumably military supply to foreign and dominion governments; less than one-third is exported to the Dominions.‡ It will be noticed that there is a big demand for British engines for installation in foreign aircraft. To summarise, the 1934§ market may be divided into:—

	Million £
Royal Air Force	6
Export Trade	1.5
Home Civil	0.5
Total	8

Distribution of Trade among Firms.

The following table shows the contribution of each of eleven aircraft factories and four engine factories

* The full vote included £30,000 for experimental civil planes which has been subtracted.

† The Vote for aeroplanes, engines and spares for 1935 is £6,856,000.

‡ Small private aeroplanes cost £600 to £1,200.

§ Mr. H. J. Thomas, Chairman, Society of British Aircraft Constructors in *Air Manual of the British Empire*, 1934-35.

¶ Mr. Baldwin stated in the House of Commons on 28th November, 1934, that 25 new squadrons were to be added in 1935 and 1936 and that orders next year would be 50-80 per cent. higher.

to the present equipment of the Royal Air Force (1934) in number of squadrons equipped:—

Equipment of R.A.F. Reserve and Auxiliary Force in 1934.

Aeroplanes. Designing Firm.	Number of Squadrons.	
	Smaller	Larger
Aeroplanes. Aeroplanes.		
Hawker Aircraft, Ltd.	31	—
Fairey Aviation Co., Ltd.	17	—
Handley Page, Ltd.	—	1
Armstrong Whitworth Aircraft, Ltd.	1	—
Vickers Aircraft, Ltd.	2	9
Supermarine Aviation Works Ltd.	—	4
Bristol Aeroplane Co., Ltd.	9	—
Westland Aircraft Works	14	—
Short Bros., Ltd.	—	1
Blackburn Aeroplane & Motor Co., Ltd.	—	4
Boulton & Paul, Ltd.	—	1

Engines.

Designing Firm.	Single	
	Engined.	Multi Engined.
Rolls-Royce, Ltd.	30	4
D. Napier & Son, Ltd.	9	10
Bristol Aeroplane Co., Ltd.	25	7
Armstrong Siddeley Motors, Ltd.	8	1

These figures refer to designs and not necessarily to production.

The Handley Page Co. devotes much of its efforts to exploiting the "Slot" patents, which have been largely developed by the Air Ministry. The right of user by the Air Force has been bought by the State.

The composition of the Force in respect to the design of its equipment varies in time. Some years ago there were squadrons of Gloster fighters and more Armstrong Whitworth aeroplanes. The present Westland equipment is obsolescent. The predominant position of Hawker Aircraft will be noted. This company has also supplied the Canadian, New Zealand, Danish, Norwegian, Swedish, Estonian, Yugoslavian, Greek, Persian and Japanese Governments.* The de Havilland Company is concentrated upon civil production, particularly light planes. It occasionally enters into competition for R.A.F. designs, but its policy is understood to be to hand production to another company. It has supplied the whole air force of Iraq, but the planes are civil planes adapted, and would be useless against a properly equipped force. This company captured the bulk of the light aeroplane trade some years ago.

Sir Samuel Hoare, introducing the Air Estimates in 1926, said: "The Aircraft industry is in a peculiarly difficult position through the fact that, unlike any other great industry in this or any other country, it is almost entirely dependent on the orders of a single government department . . . I have come to the conclusion that it is now safe and legitimate to withdraw many of the restrictions and, by this means, to enable British firms to sell their newer types in foreign markets a great deal sooner than they would be able to do without the withdrawal of the restrictions." From more recent remarks by Mr. T. O. M. Sopwith, it appears that foreign governments will only buy aircraft identical with those supplied to the British Government, and that the aircraft exported are always five years out of

(*) Prospectus of Hawker Aircraft, Ltd., May, 1933.

date in design. The trade is naturally almost confined to purchases by the smaller powers, and the

Air Ministry will not license exports of the most recent designs to its orders.

EXPORTS OF AEROPLANES, ENGINES AND SPARES.

Year.	Aeroplanes.			Engines.			Spares.	Value.
	Number.	Value.	Average Value.	Number.	Value.	Average Value.	Value.	
		£	£		£	£	£	£
1924	188	438,000	2,330	580	449,000	775	314,000	1,201,000
1925	148	345,000	2,330	492	439,000	895	362,000	1,146,000
1926	150	391,000	2,610	266	296,000	1,110	430,000	1,119,000
1927	140	205,000	1,460	380	396,000	1,040	484,000	1,085,000
1928	358	451,000	1,260	432	349,000	1,050	527,000	1,327,000
1929	525	804,000	1,530	1,148	504,000	440	852,000	2,159,000
1930	317	601,000	1,890	552	540,000	980	909,000	2,050,000
1931	304	779,000	2,560	363	413,000	1,140	668,000	1,860,000
1932	300	641,000	2,140	452	467,000	1,035	633,000	1,742,000
1933	234	475,000	2,030	409	448,000	1,100	542,000	1,466,000
10 years' average	271	513,000	1,900	507	430,000	850	572,000	1,515,000

Note.—(1) Aeroplanes are complete with engines. The above tables are taken from the Annual Report of the Director of Civil Aviation, 1933 (H.M.S.O.).

(2) Since 1931, owing to the devaluation of the £1 these are actually much cheaper than previously.

The year 1934 saw a very considerable increase in the traffic in aircraft and aero engines.

It may be assumed that the increasing crisis in international affairs of which the enormous expan-

sion programme of the National Government is a symptom, will also lead to a further increase in the export market.

PART V

The International Ring of Firms of Armament Finance and of Raw Materials.

The criticism made by the Union of Democratic Control of the international influence of the armaments industry has recently been indicated by a statement in *The Life and Letters of Lord Wester Wemyss, G.O.B., O.M.G., M.V.O.*, in which the following reference is made in a memorandum drawn up by Lord Wemyss and Mr. W. Harbutt Dawson:

"Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, the system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of any kind naturally wants the largest possible output. Not only therefore has it a direct interest in the inflation of the Navy and Army Estimates and in war scares, but it is equally to its interest to push its foreign business. For the more armaments are increased abroad, the more they must be increased at home. This interrelation between foreign and home trade in armaments is one of the most subtle and dangerous features of the present system of private production. The evil is intensified by the existence of international armament rings, the members of which notoriously play into each others' hands. So long as this subterranean conspiracy against peace is allowed to continue the possibility of any serious concerted reduction of armaments will be remote."

The armament firms at any rate thoroughly understand the value of internationalism. Attached to this memorandum are an extract from an Agreement between Messrs. Vickers Ltd. and Messrs. Vickers-Armstrong Ltd., relating to various foreign firms associated with them, and copies of official lists of shareholders in the Steel Manufacturers Nickel Syndicate Ltd. as on 21st October, 1914 and 21st March, 1935. It will be observed that Krupps were shareholders for at any rate two months of the Great War. The international character of this concern is obvious.

It is essential that the Commission should have access to all agreements and other documents relative to the international associations of British armament firms. The Union of Democratic Control suggests that the Commission should call for the agreements

contained in the following list as being representative documents:

IMPERIAL CHEMICAL INDUSTRIES.

- (1) Agreements with E.I. du Pont de Nemours on patents, processes and general interchange of information.
- (2) Agreement with E.I. du Pont de Nemours on sales arrangements.
- (3) Agreements with Solvay & Co. (Belgium) concerning chlorine and chemical interchange.
- (4) Agreements with I. G. Farbenindustrie concerning interchange of information, nitric acid.
- (5) Agreements with Belgian Explosives Group re ownership.
- (6) Agreements with Societe Française Dynamit.
- (7) Agreements with Cartoucherie Française.
- (8) Agreement with Hungarian Explosives Co.
- (9) Agreement with Norsk Sprengstoff (Norway) re interchange of chemical information.
- (10) Agreements with Roumanie Explosives Co.
- (11) Agreement with Union Espanola des Explosivos (Spanish) re interchange of information.
- (12) Agreement re sales with Comptoir Francais d'Azote (French).
- (13) Agreement with Coswig (German) re limitation of sales.
- (14) Agreement re sales with Montecatini (Italy).
- (15) Agreement with Czechoslovak Explosives Ltd. re investments.
- (16) Agreement with Barbier Group Explosives re abstention arrangement.
- (17) Agreement with Pouderies Reunies re sales.
- (18) Agreement with Societe Anon. de Dynamit de Matagne re sales.
- (19) Agreement with Societe Belge de la Dynamit Nobel re abstention arrangement.
- (20) Agreement with Casale Ammonia Co. re interchange of information.
- (21) Agreement with Etablissement Kuhlmann re abstention arrangements.
- (22) Agreement with Westfälisch Anhaltische Sprengstoff A. G. re sales.
- (23) Agreement with Poudrie Royale de Wetteren Coopall re sales.
- (24) Agreement with Norsk Sprængstoffindustrie Aktieselskat re abstention.

- (25) Agreement with Rheinisch Westfälische Sprengstoff *re* sales and exchange of technical information.
- (26) Agreement with Dervant & Huguenin *re* dye production.
- (27) Agreement with Remingtons (U.S.A.).
- (28) Agreement with Vickers *re* use of I.C.I. powder.
- (29) Agreement with United Alkali *re* oxidation of ammonia.
- (30) Agreement with Allied Chemicals (U.S.A.) *re* finance.
- (31) Agreement with Societa Italiana Recherche Industriale *re* abstention and markets arrangement for Casale ammonia.
- (32) Agreements with the British Government, e.g. with I.C.I. (Fertiliser and Synthetic Products) Ltd. and with the British Dyestuffs Corporation Ltd.
- (33) I.C.I. and Badische Co. (Germany).
- (34) I.C.I. and Jardine Engineering Co.
- (35) I.C.I. and Jardine Mathison Co.
- (36) I.C.I. and Mitsubishi.
- (37) I.C.I. and Royal Dutch Shell.
- (38) I.C.I. and Lurgi Corporation.

VICKERS LIMITED.

- (1) Agreement with Dynamit Aktien Gesellschaft with First Roumania Explosives Co. *re* part ownership of powder factory.
- (2) Agreement with Societe Central Dynamit (French) and Vickers-Terni (Italy) regarding sales.
- (3) Agreement with Remingtons.
- (4) Agreement with Colts *re* sales.
- (5) Agreements with Electric Boat Company regarding interchange of patents, sales agreements, sharing of profits.
- (6) Agreements with Schneider and Bofors regarding sales.
- (7) Agreement Vickers-Armstrongs with Copsa-Mica and Cugar (Roumania) to Skoda (Czechoslovakia).
- (8) Agreement with Maschiner Fabrik Augsburg-Nürnberg of Germany.
- (9) Agreements with Krupp.

NAPIERS LIMITED.

- (1) Agreement with Junkers *re* building the Junkers Juno oil-burning engines in England.

BRISTOL AEROPLANE CO.

- (1) Agreement with Dada-Dada Co. the representatives of Curtis-Wright Export Corporation in San Salvador.
- (2) Agreement with makers of Gnome and Rhône engines.

WAR OFFICE.

- (1) Agreements with Soley Armament Co. *re* sales of surplus stock, etc.
- (2) Agreement with B.S.A. Ltd. *re* sales of rifles, etc.

A study of such documents will establish the existence to-day of great international rings which do not cover only manufactured arms but raw materials and finance.

EXTRACT FROM AN AGREEMENT MADE THE THIRD DAY OF JANUARY, ONE THOUSAND NINE HUNDRED AND TWENTY-EIGHT, BETWEEN VICKERS LIMITED AND VICKERS-ARMSTRONGS LIMITED.

227013/33

Registered

97188

22nd June, 1928.

* * * * *

FOURTH SCHEDULE.

The benefit of all agreements and arrangements entered into by the Vendors for rendering technical services to others in connection with armaments, but subject to the obligations binding upon the Vendors

in respect thereof including agreements and arrangements with the following Companies:—

- (1) Sociedad Espanola de Construcción Naval.
- (2) Kabushiki Kwaisha Nihon Seikoshō (Japan Steel Works).
- (3) S.A. Acieres et Domaines de Resitz.
- (4) Vickers-Schneider.
- (5) Terni Company.

* * * * *

The Common Seal of Vickers Limited was hereunto affixed in the presence of:—

NORM. BIRCH, Director.

G. G. SIM, Secretary.

The Common Seal of Vickers-Armstrongs Limited was hereunto affixed in the presence of:—

H. A. LAWRENCE, Director.

G. G. SIM, Secretary.

EXTRACT FROM THE ANNUAL RETURN OF THE STEEL MANUFACTURERS NICKEL SYNDICATE LIMITED MADE UP TO THE TWENTY-FIRST DAY OF OCTOBER, 1914, SHOWING THE NAMES, ADDRESSES AND OCCUPATIONS OF THE SHAREHOLDERS, TOGETHER WITH THE NUMBER OF SHARES HELD BY EACH.

No. 71255/29.

Registered 119410, 23rd October, 1914.

Rich, Herbert Elihu, Birkdale, Sherwood Park Road, Sutton, Accountant	...	...	1
Thaine, Philip, Vickers House, Broadway, Westminster, Secretary	...	...	1
Coffin, John Thomas, 3, Crockerton Road, Upper Tooting, S.W., Secretary	...	...	1
Robinson, James G., 16, East Sheen Avenue, East Sheen, S.W., Accountant	...	...	1
Cammell, Laird & Co. Ltd., Cyclops Works, Sheffield, Steel Manufacturers	...	...	125
Vickers Limited, Vickers House, Broadway, Westminster, Steel Manufacturers	...	...	125
Tresidder, C.M.G., Capt. Tolmie John, "Trefusis," College Road, Upper Norwood, Steel Manufacturer	...	...	125
Sir W. G. Armstrong, Whitworth & Co. Limited, Elswick Works, Newcastle-on-Tyne, Steel Manufacturers	...	...	125
Fried Krupp Aktiengesellschaft, Essen/Ruhr, Germany, Steel Manufacturers	...	...	125
Schneider & Cie, Le Creusot, France, Steel Manufacturers	...	...	125
Der Dillinger Hüttenwerke, Dillengen/Saar, Rheinpreussen, Steel Manufacturers	...	...	118
Societa Di Terni, 11, Piazza Venezia, Rome, Steel Manufacturers	...	...	125
Witkowitz-Bergbau und Eisenhütten Gewerkschaft	Witkowitz, Austria, Steel Manufacturers	...	125
Compagnie des Forges de la Marine, St. Chamond, France, Steel Manufacturers	...	...	125
Compagnie des Forges de Chatillon Commentry, 19, Rue de la Rochefoucauld, Paris, Steel Manufacturers	...	...	125
Hadfields Limited, Hecla Works, Sheffield, Steel Manufacturers	...	...	125
William Beardmore & Co. Ltd., Parkhead Forge, Glasgow, Steel Manufacturers	...	...	125
Osborn, Thomas George, 156, Erlanger Road, New Cross, S.E., Private Secretary	...	...	1
Shields, John George, Vickers House, Broadway, Westminster, Registrar	...	...	1
Tomlinson, Maurice, 34, Lynmouth Road, Fortis Green, N., Cashier and Accountant	...	...	1

EXTRACT FROM THE ANNUAL RETURN OF THE STEEL MANUFACTURERS NICKEL SYNDICATE LIMITED, MADE UP TO THE TWENTY-FIRST DAY OF MARCH, 1935, SHOWING THE NAMES, ADDRESSES AND OCCUPATIONS OF THE SHAREHOLDERS, TOGETHER WITH THE NUMBER OF SHARES HELD BY EACH.

No. 71255/56.

Registered 22nd March, 1935.

William Beardmore & Co. Ltd., Parkhead Steel Works, Glasgow, Steel Manufacturers	...	125
Bellwood, Charles Robson, "Cleveland," Abbot-leigh Road, Streatham, London, S.W.16, Accountant	...	1
Bishop, Charles Arthur (Lt.-Colonel) 20, Challoner Mansions, West Kensington, London, W.14, London Manager, Thos. Firth & John Brown Ltd., and Director The Steel Manufacturers Nickel Syndicate Ltd.	...	125
Caswell, John Richard, 57, Lucien Road, Tooting Bec, London, S.W.17, Commercial Clerk	...	1
Chappell Arthur Stanley, 20, Marham Gardens, Wandsworth Common, London, S.W.18, Secretary, The Steel Manufacturers Nickel Syndicate Ltd.	...	369
La Cie des Forges de Chatillon, Commeny et Neuves-Maisons, 19 Rue de la Rochefoucauld, Paris, France, Steel Manufacturers	...	125
Durban, Alexander, "The Towers," Sandygate Road, Sheffield, Director, English Steel Corporation Ltd. and The Steel Manufacturers Nickel Syndicate Ltd.	...	1
English Steel Corporation Ltd., Vickers Works, Sheffield, Steel Manufacturers	...	124
Hadfield Limited, Hecla Works, Sheffield, Steel Manufacturers	...	125
La Cie des Forges et d'Acieries de la Marine et d'Horcœur, 12 Rue de la Rochefoucauld, Paris, France, Steel Manufacturers	...	125
Monfort, Gaston, 106, Oxford Gardens, London, W.10, Managing Director "Afsa" Ltd. and Director, The Steel Manufacturing Nickel Syndicate Ltd.	...	1
Osborn, Thomas George, 120, Waller Road, New Cross, London, S.E.14, Company Secretary	...	1
Valentine, James Alexander Forsyth, 60, Sutherland Grove, Southfields, London, S.W.18, Assistant Secretary, Vickers-Armstrongs Ltd.	...	1
Vickers-Armstrongs Ltd., Vickers House, Broadway, Westminster, London, S.W.1, Ship-builders and Armament Manufacturers...	...	248
Vickers, Douglas, "Chapel House," Charles Street, Berkeley Square, London, W.1, Director, Vickers Limited, and The Steel Manufacturers Nickel Syndicate Ltd.	...	1
Young, James Reid, 6, Vineyard Hill Road, Wimbledon, London, S.W.19, Secretary, Vickers Limited, and Director, The Steel Manufacturers Nickel Syndicate Ltd.	...	1

These documents prove, if any more proof were needed to-day, that the armament firms constitute an arms ring just as they did before the War. The international activities of the armament interests were enumerated in the report of the First Sub-Committee of the Temporary Mixed Commission, A.81/1921, and since that time such pamphlets as *The Secret International and Patriotism Ltd.*, both published by the Union of Democratic Control and, above all, the revelations of the U.S.A. Arms Inquiry, based on the documents and correspondence of the armament firms, have shown that such evils have in fact existed before and since the War. The British arms and munitions industry, by virtue of its predominant influence in the international arms ring, plays an important role in the evils associated with the industry. It is the considered opinion of the Union of Democratic Control that such evils are inherent in the system of private manufacture and trade, and its main concern has always been to show that the whole structure of the armaments industry must lead to such evils.

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PART VI

Government Servants and the Arms Industry

One of the most serious abuses of private manufacture arises from the association of government officials and the arms industry. This association of government servants with the armament firms, both because the government is the only home market and because licences are required for the export market, is inherent in the system.

The knowledge possessed by government officials is plainly of great use to the arms industry, and it is a well-known fact that officials in the fighting services and in other administrative departments not infrequently pass on retirement, or before, into the service of these firms.

The importance of this point is indicated in the fact that it was one of the four questions contained in the questionnaire concerning the private and state manufacture of arms and implements of war (Document Conf. D.A./C.L.5) which was sent by the President of the Disarmament Conference on October 28th, 1932, to the states invited to the Conference, with a view to obtaining certain information regarding the manufacture of arms in the different countries. The question and the British reply are as follows:—

Fourth Question: Are there any laws or administrative regulations in your country forbidding all soldiers or members of the military administration in active service to hold paid posts in private armament undertakings?

Reply: There are regulations in all the three fighting services governing the holding of paid posts in private undertakings by any active member of those forces. So far as the Admiralty and the War Office are concerned, there is no actual law or

regulation which in itself precludes an officer on the Active List on full pay from holding a post in a private undertaking, but, before any such post can be accepted, application must be made to the Board of Admiralty or the Army Council in accordance with paragraph 20, King's Regulations and Admiralty Instructions for the Navy, and paragraph 516, King's Regulations for the Army, and, in point of fact, permission would always be refused for an officer of either the Navy or the Army on full pay to accept employment in an armaments firm. As regards the Air Ministry, paragraph 1096 of King's Regulations for the Royal Air Force actually prohibits an officer or airman on the Active List on full pay from accepting any paid post in connection with any company, firm or individual engaged in trade.

Lord Snowden, in a speech on the Naval Estimates in 1914, referred to a paper called "*Armaments and Explosives*," devoted to the interest of the armament trade. In the issue of this paper in September, 1913, there was the following extract:—

"Contractors naturally are very keen to avail themselves of the services of prominent officers who have been associated with the work in which the contractors are interested. The first thing that they know the ropes, since the retired officer who keeps in touch with his old comrades is able to lessen some of these inconveniences, either by securing the ear of one who would not afford like favours to a civilian Kissing undoubtedly goes by favour, and some of these things that happen might be characterised as corruption. . . ."

The general atmosphere of collusion between the Government Departments and the arms manufacturers is accepted in an unquestioned manner by both sides. In a system of private manufacture there is no means of separating the interests of the country from private and commercial interests.

The list which follows has been compiled by the Union of Democratic Control and is necessarily incomplete. But it is sufficient to show how frequent a practice it is for ex-government servants to pass on retirement, either in the normal course or hastened for that purpose, into the private firms with which they, as government servants, have had previous dealing.

Vickers Ltd.

General the Hon. Sir Herbert Lawrence has been chairman of Vickers Ltd. since 1926. He was formerly the Chief of Staff, Headquarters, British Army in France, from January, 1918. After a distinguished military career in South Africa, in Egypt, in France and in the Dardanelles, he left the Army on retired pay in 1922.

Sir Mark Webster Jenkinson was the Controller of the Department of Factory Audit and Costs at the Ministry of Munitions, and Chief Liquidator of Contracts at the Ministry of Munitions after the War.

General Sir J. F. Noel Birch, after a long military career, was Artillery Adviser to the Commander-in-Chief in France from 1916-1919. He was the Director of Remounts, 1920-21, Director-General of the Territorial Army, 1921-23, Master-General of the Ordnance and Member of the Army Council, 1923-27.

Sir J. A. Cooper was the Principal in Charge of Raw Materials Finance at the War Office from 1917-19, and then became the Director of Raw Materials Finance at the Ministry of Munitions from 1919-21.

Sir Charles Craven is the Managing Director of the Works and Shipyards of Vickers-Armstrongs Ltd. etc. Served in Royal Navy, 1900 to 1912 (including command of several of the early submarines), retiring to join the staff of Vickers Ltd.; on the outbreak of war rejoined the Submarine Service; was released from active service in 1916 by the Admiralty at the request of Vickers Ltd. to rejoin their staff at Barrow to supervise the construction of Submarines and Airships.

The late Sir A. Trevor Dawson should be mentioned as one of the most important people who have been associated with Vickers. The late Sir Arthur Trevor Dawson, who was a director until the time of his death in May, 1931, was at one time Experimental Officer at Woolwich Arsenal, and was afterwards Superintendent of Ordnance to Vickers, and subsequently Chairman of their Artillery and Shipbuilding Management Board.

Sir Eustace D'Eyncourt was Director of Naval Construction and Chief Technical Adviser to the Admiralty, 1912-23. Has served with Fairfields, 1898-1902. After leaving the Admiralty in 1923 he was appointed Managing Director of Armstrong Whitworth's shipyards at Newcastle but was retained as Honorary Adviser on Naval Construction to the Admiralty. Well known for the design and construction of ships and tanks. He is now the consulting naval architect and engineer and adviser to Vickers-Armstrongs.

(Also see Parsons Marine Steam Turbine Co.)

Engineer Rear-Admiral R. Beeman recently appointed to Vickers-Armstrongs Barrow works. Lord Stanley in the House of Commons on May 29th, 1935, stated in reply to a question by Mr. Dobbie:

"Engineer Rear-Admiral R. Beeman was appointed deputy engineer-in-chief on 1st December, 1932. There is no fixed period for this appointment, which is at their Lordships' pleasure; its duration is usually about two years. This period having now expired, Engineer Rear-Admiral Beeman was due for relief during the course of the year, and would have retired in order to facilitate the promotion of junior officers. In view of his being offered the post of engineer manager at Messrs. Vickers-Armstrongs Barrow works,

arrangements were made for this relief to be carried out forthwith."

Col. Kenneth Edward Haynes was a special Director of Vickers-Armstrongs for some years till 1933. He was a member of the Ordnance Committee in 1918. Superintendent of Design in 1924-1925.

Technicians.

Mr. Hunn and Mr. Pain are two instances of technicians who have left government service to join Vickers, Ltd., and Mr. Symmons and Mr. Hammond, who have gone to Vickers Supermarine Aviation Co., Ltd.

Engineer Capt. S. C. Whyham, in September, 1934, was appointed gun mounting overseer at the Vickers Naval Construction Works, Barrow. Engineer Capt. Whyham was promoted in 1933 whilst serving in the Naval Ordnance Dept.

English Steel Corporation.—Rear-Admiral J. F. C. Patterson, O.B.E. Late Director Naval Ordnance.

Messrs. John Brown & Co. Ltd.

Joint Managing Directors:

Sir Thomas Bell, Deputy Controller of Dockyards and Shipping at the Admiralty, 1917-18.

Capt. T. E. Crease, Naval Assistant to the First Sea Lord, 1914-15. Private Secretary to First Sea Lord, 1917-19. Secretary of the Allied Naval Council, 1917-19.

Directors:

Sir Holherly Mensforth, Director-General of Factories, War Office, 1920-26.

Sir Chas. E. Ellis, sometime Director-General of Ordnance Supply and member of Council of Ministry of Munitions.

Sir Gerald Frank Talbot, Naval Attaché at Athens, 1917-20.

Trustee for Debenture Holders:

Admiral Sir Reginald H. S. Bacon, K.C.B., K.C.V.O., D.S.O. Director of Naval Ordnance and Torpedoes, 1907-9. Managing Director of Coventry Ordnance Works, 1910-15. Commanded Dover Patrols, 1915-18. Controller Munitions Inventions, 1918-19. Commanded Heavy Howitzer Bde., R.M.A., with B.E.F., France.

The Fairfield Shipping and Engineering Co.

Rear-Admiral Sir Douglas Brownrigg. Naval Censor during the War.

Messrs. J. S. White & Co. Ltd.

Chairman: Admiral Sir George Goodwin-Goodwin. Engineer-in-Chief of the Fleet, 1917-22.

Parsons Marine Steam Turbine Co.

Sir Eustace D'Eyncourt. Chief Technical Adviser to the Admiralty, 1912-23.

Birmingham Small Arms Co.

Chairman: Sir Alexander Roger, Director Motor Ambulance Dept., British Red Cross, 1914-15. Director-General of Trench Warfare Supply Dept., 1915-17.

Handley Page, Ltd.

Director: Wing-Commander Sir Louis Greig, Gentleman Usher in Ordinary to the King since 1924. Chairman, Not-Forgotten Association.

Armstrong-Siddeley Development Co.

Director: Air Marshal Sir John F. A. Higgins, Officer Commanding Forces in Iraq, 1924-26. Air Member for Supply and Research to the Air Council, 1926-30.

NOTE.—Sir John Higgins is also on the Board of A. V. Roe & Co., Sir Armstrong-Whitworth's Aircraft, Ltd., and Air Training, Ltd., which are controlled by the Armstrong Development Co.

Technicians: Messrs. Taylor, Reynolds, Briggs, Fell Wood, Foster, Draper and Lancaster are examples of technicians who have gone to Messrs. Armstrong-Siddeley. Mr. Green when he left the Royal Aeronautical Establishment was allowed to

take with him the drawings and all the information which was available on air-cooled engines. It was on the basis of his information that the whole of Armstrong's engine work has been built up.

Hadfields, Ltd.

Managing Director: Major Augustus B. H. Clerke, C.B.E., Assistant Inspector of Steel, 1899. Chief Instructor Ordnance College, 1906. Inspector, Royal Arsenal, 1908.

Babcock & Wilcox Ltd.

Director: Engineer Vice-Admiral Sir Robert Bland Dixon. Engineer Manager of Portsmouth Dockyards. Assistant Director of Dockyards. Engineer-in-Chief of the Fleet, 1922-23.

Rolls-Royce, Ltd.

Director: Major-General Sir William C. P. Boyce, K.C.M.G., Director of Transport, 1914-19. Technicians: Mr. Fell and Mr. Beilby.

D. Napier & Sons.

Chairman: Sir Harry Snagge, Director and Secretary of the Ministry of Information, 1918.

Directors: Vice-Air Marshal A. E. Borton, Sir Harry Brittain, K.B.E., C.M.G., Founder and Member of the Executive Committee of the Anti-Socialist Movement. Director of Intelligence of the National Service Department. Organised first series of visits of British women to the devastated areas 1919. Member of the Royal Air Force and Committee Ministry of Information. Also director of Illustrated London News and Sketch Ltd., and Provincial Newspapers Ltd.

General Aircraft Ltd.

Chairman: Sir Maurice Bonham-Carter. Air Ministry 1918. Brother of Lt.-General Charles Bonham-Carter, director of staff duties at the War Office, 1931-33. Director since 1933 of the Territorial Army.

Boulton Paul Aircraft Ltd.

Director: The Chairman is the Rt. Hon. Lord Gorell. Lord Gorell was Under-Secretary of State for Air, 1921-22. Recently he was Chairman of the Gorell Commission which recommended handing over greater responsibility for the safety of civil aircraft to contractors, a change which the industry had demanded for years.

Blackburn Aeroplane Co.

Technicians: Mr. Bumpus, Mr. Rennie, and Mr. Duncan.

Bristol Aeroplane Co.

Technicians: Messrs. Read, Vernon, Leach and Mansel.

Fairey Aviation Co.

Technicians: Messrs. Youngman, Forsyth and Jones.

Pornall, Aircraft, Ltd.

Director: Major L. V. S. Blacker was in the Directorate of Military Aeronautics and on the Imperial General Staff.

It was stated by the present Lord Chief Justice that it is not only necessary that justice should be done but that it should manifestly appear to be done. The Union of Democratic Control think that similar principles apply to this matter. When it is considered that the armament firms are dependent for business (either direct or by licensing) upon the British Government, it is surely most desirable that the employment of an ex-government official by an armament firm should be made impossible.

A large number of Acts of Parliament dealing with interested parties serving in Parliament, on Local Authorities, etc., have been passed to prevent any person being placed in a position in which his interest and his duty might conflict.

It is suggested that it is quite impossible to pretend that a government official is in that position if he is giving advice to the government on contracts with particular firms if he knows that at the end of his governmental service he may be offered employment by one of those firms.

It is not in the least necessary to suggest or to prove corruption. It is sufficient to say that in public life opportunities for corruption are as far as possible prevented from arising and on this ground the Union of Democratic Control suggests that if the Commission cannot recommend that the Armaments Industry should be taken out of private hands it should at least recommend that all government employees should as a matter of policy undertake never to take employment with any firm which has had government contracts or should forthwith resign his appointment upon any such contract being entered into.

This rule might well be general but in the case of the Armaments Trade having regard to the facts given in this part of the case and to the nature of that trade, there appears to be no answer to such a suggestion.

The correspondence and parliamentary questions relating thereto which follow show a slightly different aspect of the same question. It indicates the manner in which private firms may use their contacts with the services to obtain salesmen or other officials.

LETTER 1.

3, Lombard Street,

London, E.C.3.

24th June, 1931.

Colonel E. J. Skinner, D.S.O.,
Headquarters, Royal Artillery,
Northern Command,
York.

Sir,

We have the honour to inform you that our China friends, The Jardine Engineering Corporation Limited, are desirous of enlisting the services of an Officer of the Royal Artillery for employment on their Staff in China. The work which this gentleman would have to do would be to sell all natures of arms, ammunition, etc., to the Chinese Government.

It will be within your knowledge that several Continental Armament firms have been doing considerable trade in arms with the Chinese, especially during the period during which British Firms were prohibited from so doing by the terms of the Arms Traffic Convention. Now this embargo has been raised, they are anxious to develop this side of their activities in China.

In our opinion the Officer selected should be about 30 years of age and should if possible have active service experience or at any rate a good general knowledge of all natures of armament, e.g., machine guns, tanks, aircraft, etc.

We should be extremely obliged if you could see your way to making enquiries among the officers under your command as to whether any of them would wish their names put forward for this employment.

The conditions would be a guarantee of three years at a salary of £500 per annum, subject to an extension to five years at the Jardine Engineering Corporation's discretion, in addition of course to full travelling expenses. While it is not possible of course for us to give any guarantee at this juncture of employment after the conclusion of the first contract, there seems to be no reason at all why an introduction to commercial life in China should not present a very attractive opening for an officer who is prepared to spend long periods in the Far East. For this reason it seems desirable that the Officer should be unmarried.

In conclusion we would say that the appointment of this gentleman is of a very urgent nature, and we would, therefore, request you to be good enough to reply as soon as possible.

We have the honour to be,

Your obedient Servants,

(Signed) L. O'KEEFE, Director.
MATHESON & Co., LTD.

LETTER 2.

Headquarters, R.A.,
Northern Command,
York.
26th June, 1931.

DEAR COLONEL,

Colonel Skinner has asked me to send you the enclosed letter as he would very much like to have the views of the Inspector of Artillery on it, and his advice as to what action if any he should take. Would you very kindly return the letter with your reply.

Yours,

(Signed) R. A. ARMSTRONG, Major.

Bt. Lt.-Col. N. M. de la P. Beresford-Peirse, D.S.O.,
The War Office, S.W.1.

LETTER 3.

M.T.1,
The War Office,
London, S.W.1.
30th June, 1931.

DEAR ARMSTRONG,

Yours of the 26th June. Enclosure returned.

The Inspector of R.A. is of the opinion that there is no objection to Colonel Skinner letting any suitable officer he knows of, be aware of the opportunity of the appointment. Personally he feels that the opportunity, for a serving officer, in view of the precarious condition of the armament outlook, is not attractive.

The Inspector of R.A. feels that, apart from the age qualification, the job is ideally suited for Colonel P. Suther, late R.A., and that Colonel Skinner might well mention him when replying to Messrs. Matheson & Co., Ltd.

Colonel P. Suther, as Colonel Skinner knows, has just the knowledge they want, and is looking for a job.

Yours sincerely,

(Signed) N. BERESFORD PEIRSE.

Staff Officer R.A.,
Headquarters,
Northern Command.

LETTER 4.

Headquarters R.A.,
Northern Command,
York.
3rd July, 1931.

GENTLEMEN,

I have been asked by Colonel Skinner to write to you about your letter of the 24th June with reference to enlisting the services of an officer of the Royal Artillery for employment on the staff of the Jardine Engineering Corporation, Ltd., in China.

Colonel Skinner has passed your letter on to Colonel P. Suther, C.M.G., D.S.O., who, although over the age of 30 years, is very active, and considered to be the most suitable for the appointment.

Yours faithfully,

(Signed) R. A. ARMSTRONG,
Major, R.A.

To Matheson & Co., Ltd.,
3, Lombard Street, E.C.3.

On 6th December, 1934, Mr. Seymour Cocks asked the Financial Secretary to the War Office whether he is aware that the firm of Matheson and Company, Ltd., on behalf of the Jardine Engineering Corporation Ltd., the agents for Vickers Armstrongs Ltd. in China, consulted the headquarters of the Royal Artillery (Northern Command) York, as to an officer

who could be an arms salesman; that the commander in charge of the headquarters consulted the War Office; whether the War Office made any suggestion as to a suitable officer; whether this suggestion was adopted and whether it is the policy of the War Office to assist the arms firms in the appointment of their salesmen?

Mr. Hacking replied: "I have no knowledge of any official correspondence on the subject; but in any case, if the War Office were asked to recommend a suitable retired officer for a civilian post, I should see no objection to this being done."

Mr. Cocks asked: "Is not the right hon. Member aware that the War Office say, in their letter of 30th June, 1931, that they have no objection to serving officers being recommended for this purpose?"

Mr. Hacking replied: "That is exactly what I cannot trace. We have no official information with regard to that."

Mr. Cocks asked: "What has happened to the files of the War Office? Have they been destroyed so that the relationship between the armament firms and the War Office cannot be disclosed?"

On 11th December, 1934, this was followed up by another question:

11 Decr., col. 203.

Armament Firms (Appointments).

In reply to a question by Mr. Cocks concerning correspondence of 20th, 26th and 30th June, 1931, relating to the appointment of an arms salesman, Mr. Hacking said: "I have now had the advantage of seeing in the Press copies of the letters to which the hon. Member refers, and of getting into touch with the officers who wrote them. Now that I have seen them, it is quite obvious that they were written as personal, not as official, letters, and that is the reason why they were not filed at the War Office. The writer of the letter of 30th June, 1931, evidently did allude to serving officers, but it is neither the policy nor the practice of the Department to recommend serving officers for civil posts of this nature."

Mr. Anstruther-Gray asked whether these letters were written during the Labour Government's administration. Mr. Hacking replied: "Yes, Sir, that is so; and, consequently, if the hon. Member still thinks that this correspondence was of an official character and desires to attach any blame, the blame must be put on someone else and not on us."

The matter, however, did not rest there. The King's Regulations for the Army and Army Reserve, 1928, Section 7, Discipline, Paragraph 512 (a), read:

"An officer is forbidden to write private letters to officials at the War Office on official personal matters such as promotion, appointment, posting, transfer, &c."

Therefore, on 28th January, 1935, Mr. Seymour Cocks asked the Financial Secretary to the War Office: "What action he proposes to take in the matter of the correspondence relating to an arms salesman for the firm of Matheson and Company, Ltd., on behalf of the Jardine Engineering Corporation, Ltd., the agents for Vickers-Armstrongs, Ltd., in China, and stated to be personal letters, in view of King's Regulations, 1928, Section 7, Discipline, paragraph 512, which forbids an officer to write private letters to officials at the War Office on official personal matters such as promotion, appointment, posting, transfer, etc.?"

Mr. Hacking replied:

"No action is proposed. The Regulation to which the hon. Member refers does not, and does not intend to, forbid an officer from making personal inquiries at the War Office as to whether the name of any officer can be suggested who is suitable for a post outside the Army."

This association of arms firms with government servants is inherent in the system of private manufacture and is plainly open to the gravest abuses. The American Arms Inquiry in such revelations as those concerning Sir Charles Craven has shown that

such abuses do in fact occur. The case of Sir George Sidney Clive and others might be cited in this country. The existence of such regulations as those contained in paragraph 56 of the Report of the Board of Inquiry into certain statements affecting Civil Servants (February, 1928) indicates that these abuses are possible.

Further, the system of private manufacture leads to the possibilities of improper relations between armament firms and their agents with foreign governments, through diplomats, consular agents, and other channels. The *Times* correspondents and the case of Mr. A. V. Lander might be mentioned and a short statement dealing with the former follows.

This inter-relatedness extends even to the region of international conferences such as disarmament conferences at which nominees of the private firms have been present as delegates, whilst the American Arms Inquiry has shown how the private firms have their own international conferences, and then use their influence with delegates to ensure that their interests are not affected by any measure of disarmament.

No reform of the present system of private manufacture can remove the possibilities of these and other abuses which in fact have occurred. Only by taking the industry out of private hands can the association of government and war contractors be ended and with it the temptations to such abuses.

STATEMENT CONCERNING *Times* CORRESPONDENTS WHO HAVE ACTED SIMULTANEOUSLY AS VICKERS AGENTS.

At the Annual Meeting of Vickers Ltd. Mr. Kidd made certain statements concerning the correspondents of the *Times* who had acted simultaneously as Vickers Agents.

The Chairman, Sir Herbert Lawrence, in replying said:—

"I would ask the gentleman who was speaking just now to remember that I am perfectly willing to answer any questions on matters of this kind if he will come and meet me. He has asked a whole series of questions, and all I can say is, I have never heard of these gentlemen. I can assure you there is nothing to conceal. You shall have all the information we have got."

The following are the correspondents who were mentioned:—

Roland L'Esrange Bryce, 60 B, The Ridgeway, S.W. 19.

Mr. Bryce, a nephew of Lord Bryce, went to Belgrade in 1921 as a British Diplomat in the Legation. In 1923, although he had had no journalistic experience, he became the *Times* correspondent and Agent for Vickers. We know for certain that his chief business was to induce the Yugo-Slav Government to buy submarines (at the time when the British Government was supposedly in favour of the abolition of submarines). He was also supposed to sell agricultural machinery, though this was a subsidiary object as is shown by the fact that his illustrated catalogues were in English and not even priced.

Mr. Bryce did not know Serbian. He had had no journalistic experience. His journalistic work was done for him by the daughter of a White Russian General, the lady being, at the same time, the employee of the official Yugo-Slav Press Bureau.

Since it was essential not to offend the Government of Yugo-Slavia, Bryce himself did not include in his despatches anything disadvantageous to it. His "ghost," the White Russian lady, co-operated willingly because she on her side wished too to preserve the existing reactionary Pashitch regime, and prevent Yugo-Slavia recognising the Soviets. A study of the *Times* files for the years in question (1923-1924) substantiates this point.

Mr. Bryce was not successful as an agent for Vickers and when they dismissed him he lost the *Times* post as well.

M. Georges Boncesco, Financial Councillor to the Roumanian Legation, Washington, U.S.A.

M. Georges Boncesco was formerly Commercial Attaché to the Roumanian Legation in London. From January, 1920, to June, 1927, he acted as *Times* correspondent, though he too had had no previous journalistic experience. He, too, was careful to avoid any despatches which might compromise his other post, that of Vickers' Agent. It was remarked at one time, unofficially, but in writing by an important member of the staff of the *Times*, that "Boncesco sends the official declaration of Roumanian politicians, which, you will admit, are far from being the proper contributions for the *Times*."

M. Boncesco, at the same time, was acting as Assistant to Dr. E. Madge, who was representing Vickers in Roumania. M. Boncesco looked after the commercial part, whilst Dr. Madge provided the necessary political influence. They were both living in the house of the painter Nicolas Patragou, on the Boulevard Lascar Catargiu. Owing to the intervention of Queen Marie's favourite, Prince Stirbey, through whom negotiations at the Ministry of War had to be made, Boncesco lost his Vickers' agency. He was replaced in 1924 by Mr. Boxshall, the son-in-law of Prince Stirbey, who became afterwards the Chairman of the Board of Directors of Resitz, an armament firm in which the State holds the control and Vickers 20 per cent. of the capital.

M. Mavrocordato.

M. Mavrocordato, a clerk in Mr. Boxshall's office (i.e. the Roumanian office of Vickers), followed M. Boncesco. M. Mavrocordato's official address in the official Roumanian Press Bureau was given as Vickers' Office. He, too, had had no previous journalistic experience. He was a young engineer, who had studied at Cambridge. When the *Times* correspondents were reorganised Mr. Lumby became a special correspondent for S.E. Europe. M. Mavrocordato was his assistant for Roumania, and he is still assistant correspondent of the *Times*.

The above statement is an instance of abuses of the present system which make it desirable that that system should end. Others could be cited but it is not the concern of the Union of Democratic Control to pursue any particular case beyond using it as an illustration.*

The Union of Democratic Control, however, wishes to point out that the British Government has never declared that they recognise the evils of the Private Manufacture of and Trade in Arms. The Prime Minister's Draft Convention of 16th March, 1933, still the outstanding document before the dormant Disarmament Conference, made no reference to it, and the British Delegation gave no support to the modified French proposals for a system of rigid international control of manufacture, which the French put forward as a compromise in May, 1933.

It is hoped, therefore, that the Royal Commission, faced with the evidence which has been laid before it, will place on record an official recognition that charges enumerated in 1921 by the Temporary Mixed Commission are an accurate description to-day.

* The following are some of the more important Exhibits in the U.S.A. Inquiry which have a special bearing on British firms and the abuses associated with them:

Relations of Vickers Ltd. with the Admiralty:	Part I. Exhibits 18, 19, 20, 21, 22, 23, 32, 125, 126, 127.
Ex-officials and Vickers Ltd.	Part I. Exhibits 127, 172, 173.
Relations with the Press.	Part XI. Exhibits 926 and 927.
Military information sent Abroad.	{ Part XI. Exhibit 948. Part II. Exhibits 213, 255, 256.
Influencing Disarmament Conference.	{ Part IX. Exhibits 816, 817, 818, 822, 824, 827. Part XI. Exhibit 931.
British Consulates' assistance to Arms salesmen.	{ Part III. Page 644. Part X. Exhibit 879. Part XI. Exhibit 948.
Armament Loans....	{ Part I. Exhibit 162. Part V. Exhibit 463, 464, 476, 512.
Avoiding Treaty obligations.	

PART VII

Present Arrangements in force in the United Kingdom relative to the control of the Export Trade in Arms and Munitions of War.

The Terms of Reference of the Royal Commission state, with regard to licensing, that the object is:—

"To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what direction."

The system at present in force is to require a licence for every consignment of arms exported. It must be pointed out that for the most deadly weapon of warfare—the aeroplane—there is an open general licence, issued for their export, the only exception being Abyssinia. This arrangement was based on a desire to foster the aeroplane industry, even at the expense of the public interest both at home and in those many countries which import British aircraft.

In presenting the estimates in the House of Commons, in 1926, Sir Samuel Hoare, then Minister of Air, explained the situation in suitable terms. He said:—

"Obviously the aircraft industry is essential to the expansion of the Force in any time of emergency. It is no good denying the fact that the aircraft industry has many difficult problems to face. It is in a peculiarly difficult position through the fact that, unlike any other great industry in this or any other country, it is almost entirely dependent on the order of a single Government Department. In the case of other great industries, there are private customers who give orders, and the industry is not entirely dependent on one Government Department. This means that in the case of the aircraft industry a change in Government policy reacts with particular force upon the industry because it has no other customer. . . .

"I have been considering the position with my advisers, and have come to the conclusion that it is now safe and legitimate to withdraw many of these restrictions and, by this means, to enable British firms to sell their newer types in foreign markets a great deal sooner than they would be able to do without the withdrawal of the restrictions. I hope, as a result, it will be possible for the British firms to be less exclusively dependent on a single Government Department here, and that it will help them to build up for themselves markets abroad for British machines and British engines—than which there are no better anywhere in the world."

This open general licence reveals an extraordinary gap in the British licensing system, and if aeroplanes are to be exported at all, they should come under a system of licensing. Further, in view of the convertibility of civil planes for military purposes, a similar licence should be imposed for civil aircraft.

With regard to all other licences, it is surely an axiom of an effective licensing system that all the statistics of export should be promptly and fully published. At the present time, they are not published except in reply to questions in the House of Commons, which extract only incomplete information. Statistics showing the amount of goods exported and the countries of export are given in the three-monthly Board of Trade statistics, but this information is available only after the arms have left British ports.

The inadequacy of the information possessed by the British Government is admirably shown by the following incident.

In 1928 a special commission set up by the League of Nations Assembly to draft a Convention for the Supervision of the Private Manufacture and Publicity of the Manufacture of Arms and Ammunition and Implements of War, recommended that each government "should undertake to transmit to the Secretary-General of the League, or to publish within two months after the close of each quarter,"

certain information about the armament licences granted. This information included "the names of all the enterprises with which the holder (of the licence) has concluded agreements or associations of any kind whatsoever, with a view to the production of the articles of war material for which the licence has been granted" (Clause 2). One objection raised was that the countries dependent on imports of armaments from abroad would be unable to keep private the nature of their war preparations while their manufacturing neighbours would enjoy all the advantages of secrecy. The British delegate gave several very illuminating reasons for refusing to accept this clause:—

"In the first place my Government could not give this information; they have not got it. Secondly, it is only the manufacturers—the licensees themselves—who could furnish it, and they would certainly refuse to do so. Thirdly, we have no power to compel them to do so, and, fourthly, very few Governments would have the courage to introduce legislation to make them do so."

The British Government was undoubtedly right in suggesting that very few governments would have the courage to introduce legislation to force armament manufacturers to divulge information about their work. Such secrecy is inherent in the private manufacture of arms.

Another example of the incompleteness of the present licensing system is indicated by the fact that the names of the firms are never divulged. Sir J. Simon, on 7th December, 1931, stated with regard to export to China and Japan:—

"I should not in any event be prepared to divulge the names of the applicants for licences, which are always treated as confidential." Two days later, 9th December, 1931, Major Colville stated, concerning China and Japan:—

"During the past two years licences to export war material to the Governments of both countries have been issued. The licences were in respect of machine guns, rifles, anti-aircraft guns, ammunition, TNT, cordite, neonite, tanks armoured vehicles, aircraft armament, fire control gear, naval shells and submarine mines. As I have already stated, I am not prepared to disclose the names of the firms to whom the licences were issued."

Mr. Thorne said: "Will the hon. Gentleman give any reason why he is not prepared to give the names of the firms in question?"

Major Colville replied: "The policy has been carried out by successive Governments, and I see no reason to depart from it."

Again on 7th June, 1932, Mr. Runciman stated in reply to a question concerning the refusal of permits:—

"It has never been the custom to give these particulars, and its undesirable to do so." Lastly, on 10th December, 1934, when Mr. R. T. Evans asked the following question:

Mr. R. T. Evans asked the President of the Board of Trade particulars of all licences granted during the years 1932, 1933, and the 11 months of 1934, in respect of exports of war material, such particulars to include the names of the firms to whom the licences have been granted, the quantities and descriptions of the commodities involved, and the overseas countries to which they were consigned?

Colonel Colville replied:

"It has not been the practice to disclose the names of the individual firms to whom licences have been granted, and the value of a statement of such length and in such detail as the hon. Member desires would not in my opinion, justify the expenditure of the time and labour which would be required for its preparation."

Occasionally licences are refused, but incomplete information only is available on such refusals.

On 27th February, 1934, Mr. Runciman admitted:

"Records of the number of licences issued are not available for the whole period in question. In any event, statistics showing only the number of licences issued would give no indication of the quantities or materials covered by such licences, and to extract the information as to quantities and materials over the period for which records are available would require expenditure of much time and labour."

On 24th April, 1934, Mr. Runciman stated:

"Seven formal applications for licences to export arms were refused during the four years 1930 to 1933. I should, however, add that in cases of doubt prospective applicants normally make informal inquiries, and that no information is available as to the number of cases in which inquirers were informed that a licence would not be issued." These seven cases were described on 9th May, 1934, in the following statement by Sir John Simon:

"The consignees in the seven cases referred to were Government authorities in China (three cases) and in Brazil (two cases), a private individual in Austria, and a firm in Belgium. Various Departments are consulted before the issue of licences, and the decision to refuse a particular licence may be taken on the advice of any of these Departments."

On 27th November, 1934, Mr. Runciman gave later information:—

"In the 12 months ended 31st October, 415 licences were issued for the export of war material and seven licences refused."

Sir John Simon gave confirmatory statement of the general principles governing the licensing system on 8th November, 1934:—

"In the first place the British exporter has to establish to the satisfaction of the appropriate Department the real destination of his goods. Again, we give no licence except for export to Governments, a thing which is worth noting. In the next place, we refuse the benefit of our export credits system to the export of munitions of war, and, so far as I know, we are the only country in the world which does so. Further, we never subsidise a private firm to produce arms—never. If I may refer to the service of the Foreign Office and make a perfectly simple statement about it, we never allow our diplomatic or consular representatives abroad to act as travellers or canvassers for armament firms—never. Our diplomatic help is given only when a foreign State has announced its intentions to purchase from abroad. Then our service naturally does its best to secure that the British firms should get a proper opportunity."

Assuming the private manufacture of and trade in arms, it is not enough to have prompt publication of detailed statistics for trade from the licensing of the order at the works to the final consignment to the receiving Government. There should be a licence system which includes manufacture, both State and private, and this must be accompanied by an international organisation for the inspection of the industry on the spot in order to verify the returns which are made.

A system which demanded a licence for the manufacture, with full publicity and inspection would expose the accelerated arming of countries which invariably precedes a war. Thus, for example, the arming of Bolivia and Paraguay from 1928 onwards, when the dispute between Bolivia and Paraguay broke out, would have been known to the world before continuous warfare started in 1932. Similarly, the concentrated arming of China and Japan from 1929 onwards would have been exposed. It was little short of a farce to discuss an embargo, in the case of Bolivia and Paraguay in 1933, when the two countries were already fully equipped, and in the case of China and Japan when both countries were supplied.

The case of the Chaco is particularly notorious, as neither Bolivia nor Paraguay manufactured arms, aircraft or munitions. The war was therefore only possible because of the activities of arms manufacturers from the very countries which were

supposed to be trying to stop the war. The prolonged delays in establishing an arms boycott and the leakages which continued afterwards across the Argentine and through the international rivers in South America, emphasise the need for a far more stringent licensing system, which is only possible if based on a state ownership and control of arms manufacture.

The licensing system is further incomplete as it does not include the export of chemical substances which are of military use only, and certain elements required for the manufacture of explosives.

But even these improvements in the British system do not remove the dangers inherent in the arms traffic. Nor do they remove the possibilities of British firms circumventing them. They do not prevent British firms manufacturing or finishing arms abroad and thus avoiding the licence system. This manufacture abroad can take two forms:—

(1) it can be done in direct subsidiaries of the home armaments firms, and

(2) it can be done under licence in the works of foreign armament firms.

Examples of direct foreign subsidiaries are:—

Vickers.

Placencia del las armas, in Spain.

I.C.I.

Bickford & Co., Austria (fuse factory).

Cartoucheria Obea, Argentine (revolver and sporting ammunition).

Fairey Aviation.

Belgian factory.

Soley Armament Corporation.

Belgian factory.

This is plainly shown in answer to a question in the House of Commons on 7th June, 1932:—

Mr. Tom Williams asked: "Do I understand from the reply that where English people have firms abroad producing munitions of war they are subject to these licences?"

Mr. Runciman replied: "No, Sir; licences can only apply to exports from this country."

Both Vickers and I.C.I., as well as having these direct subsidiaries abroad, also have large investments ranging from 50 to 20 per cent. in foreign armaments firms. Vickers has interests in Vickers-Terni, Italy; the Japanese Steel Works, which is part of the Mitsui armament concern; Resitza, Roumania; the Societe Polonaise de Materiel de Guerre and the Sociedad Espanola de Construcion Naval. I.C.I. has interests in Societe Anonyme d'Arendonck explosives factory in Belgium (30 per cent.); Czechoslovak Explosives, Ltd., (32 per cent.); Dynamit-Action-Gesellschaft (12 per cent.) Explosives and Accessories, Germany; the Roumanian Explosives Co. (20 per cent.); the Hungarian Explosives Co. (12 per cent.). Vickers and I.C.I. have also a number of subsidiary and allied companies in the British Dominions.

Secondly, the records in Somerset House and the Agreements produced in the American Inquiry show that Vickers and I.C.I. have a number of patent and selling arrangements with foreign armament firms. These probably include, as did the agreement between Vickers and the Electric Boat Company, arrangements for carrying out work in each other's factories.

Further, the licensing system does not cover, nor indeed affect, the preliminaries to the placing of orders. Colonel Colville admitted as much in a statement on 8th March, 1933, when he said:—

"There is no regulation which requires arms manufacturers and merchants to advise my Department immediately a foreign contract has been secured. The jurisdiction of the Board of Trade commences only when application is made for an export licence."

Another criticism of the present licensing system is that based on the fact that embargoes can and are in fact avoided in spite of it.

For example, an arms firm can sell to a third party, which can re-sell to the nations requiring arms. This happened in the case of Bolivia and Paraguay, although the British Government denied any knowledge of it. For instance, on 13th February, 1935, when asked whether he was able to state what arms reached Bolivia and Paraguay during the period of the double embargo, Sir J. Simon said:—

"No, Sir. I regret that I have not sufficient information to reply to this question."

Mr. Mander asked: "Will my right hon. Friend consider the advisability of asking for the information to see whether there are any arms in addition to those from Belgium and Norway about which representations have already been made?"

Sir J. Simon replied: "These were cases in which information reached us, not from Bolivia or Paraguay, but from other sources. My hon. Friend will, of course, see the difficulty of knowing where to address our enquiries."

Documents in the U.S.A. Arms Inquiry brought to light a number of such cases, concerning China and Japan, and Bolivia and Paraguay.

Example 1.

On 12th September, 1929, Colonel Taylor, the joint agent of I.C.I. and du Pont de Nemours in Paris, cabled to the American firm:—

Cable No. 792.

"Believe N. E. Bates Jr. should try to sell to Northern China as I do not believe we should deal through Holland. Imperial Chemical Industries Ltd. have quoted following prices to Shanghai through Austrian company. Cannon powder 2.65 dollars; rifle powder 2.26 dollars per pound c.i.f. including 25 per cent. commission."

Cabled from Paris Office, 12th September, 1929.

Example 2.

The following Exhibit No. 477 was written by Mr. N. E. Bates, Jr., the South American Agent of du Pont and also of I.C.I.—

Exhibit No. 477.

(Copy to Imperial Chemical Industries, Ltd., Sec. Anon. Commercial e Industrial Tucuman, 681, Buenos Aires, Argentina, and Imperial Chemical Industries, Ltd., 285, Madison Avenue, New York.)

Ms-176-A-1,

184-Uruguayan Govt.

Colonel William N. Taylor,

Paris Office, Foreign Relations Dept.

June 11th, 1934.

Incorporated with limited liability in the State of Delaware, U.S.A.

H-108.

Imperial Chemical Industries, Ltd.,
Cordite Section,

Millbank, London, S.W.1, England.

DEAR SIRS,

Attached is confirmation copy of our cablegram of 7th June informing you that Sr. Manuel Ferreira, our agent in Paraguay, who is now in Buenos Aires, asked us for prices c.i.f. Montevideo on 200 kilos. Picric Acid and 2,000 kilos. Flake T.N.T. We also informed you in our cablegram that we could not quote from this end owing to the embargo on munitions and military propellants decreed by President Roosevelt.

In view of the fact that there is no similar embargo obtaining in England, we suggested that you quote prices to your office in Buenos Aires, who in turn would advise Ferreira.

Although this inquiry distinctly states that prices are wanted c.i.f. Montevideo, we suspect that the material is for Paraguay, and since we wish to co-operate with our Government in observing the embargo, we deemed it best not to quote.

Yours faithfully,

For E. I. DU PONT DE NEMOURS & COMPANY,

N. E. BATES, JR.

NEB:AKR.

Exhibit No. 478 gives the telegram and its decoding:—

Exhibit No. 478.

Cipher word.

Agiou	...	...	...	Advise
Ferreira	...	...	...	Ferreira
Iwrrpu	...	...	...	Cannot Quote
Edjec	...	...	...	Owing to Embargo
Manmu	...	...	...	Stop
ICI	...	...	...	I.C.I.
Gjexe	...	...	...	London
Ixcje	...	...	...	Will quote
Dsoox	...	...	...	Direct to you

Further, embargoes are always discussed for months beforehand so that not only the countries at war but the arms firms are given abundance of notice. In a letter from Mr. J. H. Spencer, of Spencer & Waters, Ltd., Chile office, dated 24th December, 1932, Mr. Spencer, writing to Mr. Monaghan, the Export Manager of Remington Arms Company, said:—

"I notice in the Press that there is considerable agitation in Washington circles to put an embargo on shipments of any ammunition to any of these countries practically at war, but in the meantime European manufacturers are selling all they possibly can."

Conclusion.

To summarise our criticism of the present system of licensing:—

- (1) It does not cover the export of aeroplanes.
- (2) It does not cover the export of chemical substances which are of military use only and certain elements required for the manufacture of explosives.
- (3) Information is only published after the arms have left British ports.
- (4) Information is inadequate. It does not give the name of the firms involved. It does not give particulars of cases where permits for licences are refused. It does not cover manufacture nor the essential inspection which should accompany manufacture.
- (5) It does not prevent British firms manufacturing or finishing arms abroad and thus avoiding the licensing system.
- (6) It does not cover the preliminary unofficial inquiries made by prospective applicants.

Assuming the trade in arms, the following are essential reforms, but it must be stated that only the prohibition of the export of arms and munitions would remove the abuses inherent in such traffic:—

- (1) Publication of licences.
- (2) Publicity for orders from state and private works.
- (3) Publicity for purchase by home and foreign governments.
- (4) Licences to manufacture and full publicity for such manufacture.

The suggestions for such proposals made during February, 1935, were supported by all nations except Great Britain, Italy and Japan.

The Union of Democratic Control therefore hope that, as a contribution to the removal of the present serious defects of the licensing system the Royal Commission will advise the British Government to support the aforementioned proposals.

PART VIII

The Practicability of the Prohibition of the Private Manufacture and Trade and the Institution of a State Monopoly.

In preparing the three sections which follow the Union of Democratic Control urge that quite apart from particular instances of inefficiency the system of private manufacture of arms inevitably gives rise to inefficiency. No suggestion for reforming these abuses can abolish these inherent tendencies. If they are to be avoided, the whole industry must be taken out of private hands.

It is not the function of the Union of Democratic Controls to make detailed proposals for producing an efficient war machine or to advocate nationalisation for that purpose. The Union of Democratic Controls' objects do not include this object. It is the business of the Union of Democratic Control to demonstrate the widespread and inherent evils in the armament industry. The present system has been shown to give rise inevitably to inefficiency, corruption, secrecy and irresponsibility in national and international affairs, and finally plays a prominent part in fomenting war and national antagonisms.

Nevertheless, it has been thought advisable to give some indication of the general framework of nationalisation and control.

1. THE PRACTICABILITY OF THE PROHIBITION OF THE PRIVATE MANUFACTURE AND TRADE IN HEAVY ARMS AND THE INSTITUTION OF A STATE MONOPOLY.

It is plainly impossible without access to the documents and books both of the firms involved and of the government departments which deal with them, to put forward any detailed schemes of nationalisation. This is very much more the case when dealing with the heavy armaments industry, which has neither the trustified and monopolistic nature of the chemical industry nor the comparatively simple, though as yet un-coordinated units which characterise the aircraft industry.

The heavy armaments industry has already been described in some detail together with that of the main essential raw materials which are frequently under the same control as that of the completed armaments. It has been shown that the firm of Vickers Ltd. dominates the industry and that this group is the centre of a complex group which has ramifications in this and in other countries, in firms producing raw materials and accessories, in banks and in other directions which give it a dominating influence.

Whilst in the chemical and aircraft industries the point was made that the plant used for producing commercial goods is capable, often with very little modification, of producing war goods, and that similarly in the aircraft industry, the same plant would be used for producing civil planes capable of use as military planes, and that aero engines could be used for either type of plane, in the heavy arm industry this interchangeability is rarely found. There is no peaceful use in a 16-inch gun and no one can pretend that a torpedo has any commercial utility.

The principle has already been adopted to a great extent of dividing the production of military arms from that of civil goods. Thus, in the Vickers group which, in view of its predominating importance, is in this memorandum taken as the basis for discussion, most of the railway wheel and axle business is done at Taylor Bros., armour plate production is centred at the River Don works, heavy castings at the Grimesthorpe works, and tools at Openshaw. The forge departments at Darlington Forge and Openshaw have been closed and forging operations centred at Sheffield, while the drop forgings works at Elswick and Attercliffe are being merged into one big department at the River Don works. The amalgamation of Vickers' and Cammell Laird's railway interests took place under the Metropolitan Cammell Railway Wagon and Finance Co., and a further move has been the formation of the Firth-Vickers Stainless Steel Co., absorbing the stainless steel business of Firth Brown and English Steel Corporation.

If this concentration is a move for productive efficiency, then it appears reasonable to assume that a concentration of armament production would also lead to greater efficiency. If the concentration of the armour plate production of Vickers, Armstrong Whitworth and Cammell Laird has proved economical, then would not the absorption of the armour plate production of Firth Brown and Beardmore under a government control be a further step towards greater efficiency?

The differences between the production of steel for armaments and that for commercial products start from the time the raw metal is placed in the furnace. This definite distinction between arms and civil production is a factor of enormous importance in the consideration of the practicability of the institution of a state monopoly in the heavy arms industry.

The principle of separation is already admitted in the memorandum* on the abolition of private manufacture and the nationalisation of the manufacture of arms presented to the Disarmament Conference by the French, Spanish, Polish and Danish Governments in 1933, in which they state:

"The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms.

"The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destines it exclusively for military use."

Arms which in the process of manufacture are produced separately from all commercial work from the time when the pig iron, scrap steel and alloy additions are charged in the steel melting furnaces, include the following:

- (a) Armour plate for ships and tanks.
- (b) Armour piercing shell.
- (c) High explosive and shrapnel shell.
- (d) Air vessels for torpedoes.
- (e) Gun forgings.
- (f) Gun shields and barbettes.
- (g) Communication tubes.
- (h) Castings for turbines, gun mountings, etc.
- (i) Ship castings.

Materials required for high explosive and shrapnel shell could be purchased in bar or billet from outside sources and subsequent operations carried out in a government arsenal. But, as far as the other articles are concerned, it is essential, owing to their size and their composition and the heat necessary, that they should be finished in the works where they are cast up to the final machinery stages at least. Thus, a separation of the manufacture of heavy arms from that of commercial steel goods, which is a practicable consideration, must assume the government's ownership and control of the steel works necessary for the manufacture of the war stores enumerated above.

The standard case will undoubtedly be put by the arms firms and possibly by the service departments associated with them that private manufacture is:

- (a) essential for rapid expansion on the outbreak of war, and
- (b) more efficient.

With regard to (a) Dr. Addison has proved that on the basis of his experience during the last war, this is not true. Further, in his memorandum and in subsequent cross-examination, he gave reasons why it was correct to assume that private firms would fail just as much in the event of another war to satisfy the requirements of expansion.

Dr. Addison also gave many illustrations of the inefficiency of private firms during the war period.

* Conf. D/C.G.48. Geneva. March 4th, 1933. Pages 8 and 9.

Whilst there may have been extenuating circumstances at that time, they do not apply to-day.

But taking Vickers as an example, and it with its tremendous capital and widely spread industry has every facility for efficiency, it can be shown that the same inefficiencies characterising the private firms during the war characterise them to-day. Indeed, these inefficiencies are inherent in the system of private manufacture. The following are taken as representative examples, and it is suggested that if access to complete information were available they could be enlarged and others discovered.

LOSSES DUE TO THE JOINT MANUFACTURE OF ARMAMENT AND COMMERCIAL STEELS IN PRIVATE FACTORIES.

Technical Losses.

1. *Works layout.*

The largest part of the steel required for armaments in this country is manufactured in the Brightside district of Sheffield. The arms firms manufacturing them are:—

E.S.C. Ltd. (Cyclops works); Thos. Firth & John Brown (Atlas and Norfolk works); E.S.C. Ltd. (Grimesthorpe works); E.S.C. Ltd. (River Don works); W. Jessop & Sons (B.S.A. subsidiary); Firth & Brown (Tinsley works); Firth-Vickers Stainless Steel Corporation. Firth Derihon Drop Forgings and Hadfield.

Throughout the area runs the River Don which provides a supply of cheap water, a barrier to efficient works layout, a hindrance to internal transport, and an annual flood. The works are riddled with roads which split them into awkward and uneconomic pieces, and the internal railways are a collection of shunting stretches and acute bends. Not one of the works has been planned as a whole but each firm has gradually grown and has acquired land wherever possible without regard to efficient layout. Amalgamations have taken place but have not resulted in big changes of internal structure, a policy being pursued of concentration into certain units without radical alterations. It is true that E.S.C. has spent above £1,000,000 this last two years on new plant and buildings, but it has been a policy of tackling the different manufacturing units one by one without due regard being paid to the whole. When the representative of this great corporation declared in open court that rationalisation was "a word which originated in Parliament to mean amalgamation" it was a sufficient insight into the business mind of the arms manufacturers.

When a works is laid out for the production of several types of product, it is obvious that the layout cannot be as satisfactory as if it were designed for one product only. For example the armour plate departments of E.S.C. are situated fairly close together, but even so a plate must cross the main Sheffield-Doncaster road by a level crossing no fewer than four times in the course of its production. A distance of three-quarters of a mile separates two armour plate departments of what was formerly Cammell Laird's works at Grimesthorpe and Cyclops, and though the latter works is not producing at the moment, arms products have still a rail journey to make from Grimesthorpe to River Don works. There is a big transfer of steel between E.S.C. and its subsidiary company Industrial Steels—1½ miles apart—and Firth Brown manufactures steel in the Atlas and Norfolk works to be finished in the Tinsley Works.

2. *Administration.*

The steel firms will be eager to point out that administration expenses upon armament steels are much heavier than upon commercial. What they will not be so eager to see is that the wider range of products in a single factory, the greater must be the administrative problems, consequently the heavier the expenses. The segregation of armament production into a national factory would, whilst not overcoming the technical difficulty of each job being an individual job demanding special care, considerably lessen the administrative difficulties.

Nor would the government have to bear a proportion of that costly world wide selling organisation which Vickers emphasised so much during the War.

3. *Material control.*

An earlier reference was made to the trouble caused to all steel firms by the mixing of various types of scrap and materials. It is partly for this reason that there is an inclination to limit the number of brands of steel produced as no matter how carefully scrap bins and steel oddments are marked there is always the likelihood of low grade scrap getting into an armaments cast, or of nickel steel scrap being wasted in producing a cheap commercial steel. Ingots and surplus pieces of steel have a habit of lying around for months and occasionally years, and as records are expensive to maintain in an up-to-date condition it is often the practice to dispose of steel above a few months old by remelting it. The saving resulting from a complete separation of cheap and armament steels might not amount to a great deal in this direction but stock control problems would certainly be simplified.

4. *Compromise in plant.*

It is self evident that the manufacture of say Morris Oxford and Rolls Royce cars in the same factory would not be an economic proposition. It is surely just as absurd to associate straight commercial steels with high class armament steels. Reference has been made to the unsuitability of gun turning lathes for commercial work, and though the manufacture of the two types of steel is separated to a large extent, certain compromises have to be made in plant equipment in those departments where the two are associated.

Other things being equal, the rate of melting in an open hearth furnace is determined by the ratio of weight charged to hearth area. When a furnace is built a balance must be struck between lowering the melting cost by extending the hearth area and raising the overhead costs by investment in more bricks, framework and floor space. The more expensive a steel is to melt—the arms steels are the most expensive—then the greater will be the saving by an extension of the hearth, though the cost of increasing the hearth will be the same in all cases. Thus a hearth can be extended more if the furnace is to melt arms steel exclusively than it can be if to melt both, consequently a compromise does not permit of the lowest possible cost of production.

The capacity of a furnace (i.e. quantity of molten steel it is designed to hold) should be determined by the average size of a cast. As commercial steel casts are more numerous than arms steel casts the furnace will tend to be of the size required for their production and not of the latter.

Other examples could be given of the disadvantages arising from compromise.

The tendency in the commercial world is for bigger and bigger steel products. I.C.I. requires tremendously large high pressure vessels and solid forgings replace items which were formerly built of several parts. But the demand for arms steel is not in the direction of larger ingots. The largest required is about 100 tons, whilst commercial ingots are now up to 200 tons in weight, and the armament ingots have to share the cost of fitting the melting house and forge with equipment capable of dealing with up to 250 ton ingots though they themselves do not need it.

5. *General inefficiency.*

The Government appreciates that the steel industry is still very inefficient and badly organised for they made the granting of tariffs conditional upon reorganisation, the undertaking of which has been consistently avoided by the industry since the tariffs were granted. Progress has been made in several directions but rationalisation is yet unknown.

What applies to the whole industry applies equally to the heavy firms. When Vickers-Armstrongs and Cammell formed E.S.C. there was little consideration given as to the course of future developments.

Concentration did take place in the making of certain products, but works were closed with a rapidity which cost thousands of pounds. Cammell Laird's works at Penistone were closed down overnight, though three or four furnaces were under gas—it costs over £100 to light up a furnace—all of them were in excellent repair and there were large stocks of iron ore, pig iron and scrap steel available. The correct policy was to have turned all the stocks into ingots and had them transported to the works requiring them. Instead the stocks of raw materials were moved and the furnaces deserted, to be pulled down three years later and rebuilt in the River Don works.

The Motor Car Crank Department (machining drop forgings) was situated in the Attercliffe works, Sheffield, of Vickers. Certain of the machines were moved into the East Machine Shop at the River Don works in 1930, found unsatisfactory there, and were returned to Attercliffe. A few months later all the machines were moved to the Grimesthorpe works at a cost of not less than £15,000. Eighteen months later all the machines were moved into the East Machine Shop, River Don works, again at a cost of thousands.

Instances similar to these can be recited *ad nauseam*, all going to show that there was little coherence in the technical planning of the company. It was realised that the works site was not of the best, and the chief engineer and others inspected a site at Poole, bordering on the sea. Chiefly on the score of the distance from coal the scheme of moving the E.S.C. works away from Sheffield was turned down. Instead the River Don works have been repaired piecemeal. The melting house was brought from Penistone, forging presses from Openshaw, machine tools from Openshaw and Grimesthorpe, and drop stamps from Elswick. As a contrast to this, the United States Steel Corporation and the Thyssen Group in Germany have abandoned the practice of reconstructing a works that has fallen behind. They allow it to carry on while they set up new works of the most advanced type to take its place; when that is ready the old is dismantled and either abandoned or rebuilt entirely.

The other heavy arms firms do not appear to be run on any sounder lines. If it be asked how, despite these inefficiencies they manage to continue in business, the reply can be found in a slight twist of the famous question and answer:

"Why do heavy arms firms make profits?"

"Because they only have other arms firms to compete with."

Commercial Losses.

1. Capital losses.

The chairman of Stewart & Lloyds, referring to the steel industry in his recent annual report, declared "Figures which have been supplied to me show that on a rough estimate £58,000,000 has been written off since the War, representing some 60 per cent. of the capital invested." The Government has not had to bear any portion of this loss directly—apart from an offset against income tax liability—but the effect of financial weakness in the industry was ably stated in the Balfour report. A company which is financially weak cannot borrow capital and the prospect of profit being the sole attraction for investors and bankers alike and without capital the company cannot raise the level of its efficiency. It therefore is in no position to lower its prices and share out its overhead costs on an enlarged output as an immediate loss would be unavoidable. The tendency will be for it to maintain prices, to squeeze as much as possible those customers who can afford to pay, and to lower costs in turning out an inferior article.

With the exception of the South Sea Bubble, Britain's financial history has few things more spectacular to offer than Vickers' investments after the War. £17½ millions in a few months, and the larger portion of it lost in a very short space of time! Armstrong Whitworth crashed just as heavily on speculative undertakings unconnected with armament making. Vickers' shares were written down,

so were Armstrong's, Cammell Laird's, Brown's. Recently Hadfield reduced its capital from £2½ to £1½ millions, Darlington Forges has gone, and though Vickers had the opportunity of a review of the capital assets they bungled two amalgamations by way of E.S.C. and the Metropolitan Rail & Carriage Co.

Vickers has always held a strong financial position but even it appeared chary of investing money in E.S.C. After the latter's reconstruction in 1931—incidentally not with the full approval of the auditors—although the chairman of Vickers complained of having to hold securities returning 3½ per cent. instead of financing the building of battle-ships, yet E.S.C. had to clear out obsolete machinery and plant at any price in order to raise funds, though the scrap market rose rapidly during the same period. The reconstruction of E.S.C. plant commenced in 1932, and is intended to cost about £1½ millions. The works were in a pitiful state, and half the machinery was out of date. The melting furnaces were very old, and gas leaked from the underground chambers of one into the next. Owing to these leakages the cost of melting was high. It was probably due to the loss of heat that charges were often composed of 25 per cent. scrap and 75 per cent. pig iron, reversing the usual proportion, for pig iron is more easily melted than large pieces of scrap. Pig iron at that time was costing double the price of scrap, and also requires larger additions of iron ore to be made to the furnace for purifying the charge.

In the financial scheme for reconstruction E.S.C. had an item of £100,000 reserved for "Deferred Repairs". Actually the whole reconstruction was a deferred repair, but the figure is quoted merely as an illustration of the way in which necessary repairs were arising and being shelved. The tendency was also to neglect departments which at the moment appeared to be surplus to requirements. In a sudden emergency Cyclops works was certainly in no condition to commence the manufacture of armour plate immediately. Similarly other firms allowed plant to decay. Hadfield's shell forging shop was deserted, the engineer's observation being "Don't touch it any more; let it rot." Beardmore, prior to the trade revival of this last two years was in a very shaky position, and it is certain that in the cheeseparing necessary to reduce losses the working efficiency of various departments would be impaired.

2. Budgeting.

There are numerous ways of indicating that from a financial and administrative point of view, the manufacture of armaments should not be conducted in association with commercial activities. "Budgeting" is a feature of all modern business firms, but there must be few industries where it is of less use than in the steel industry, subjected as no other to the vagaries of the trade cycle. What, for example, could be planned in E.S.C. where the annual trade from 1930 onwards was, in round figures £3,000,000; £2,000,000; £1,300,000; £2,000,000 and £3,000,000. At one period—early 1932—the melting department had to commence the week with only two carts on order—each furnace made about 11 carts per week and there were three furnaces working—therefore the melting costs of necessity were very high. Firth Brown was in just as bad a position, only their electric furnace producing stainless steel running economically, and similar conditions existed in all heavy steel firms. As the prices charged to the Government are influenced by costs of production it will be appreciated that this uneconomic manufacture, due to changes in the commercial world and not to any governmental factors, sends up the prices of arms products sold to the Government.

3. Depreciation.

A general rate of depreciation is charged into the manufacturing costs of all steel products, the rate allowed for arms and commercial steels being 7½ per cent. on plant. But reference has been made earlier to the vast difference in the speed of manufacturing the two types of steel, and as speed is

the biggest factor bearing on the rate of depreciation, that rate cannot be so high on arms steels as on commercial. Nor, since methods of manufacturing armour plate and guns change but little, is there the same tendency for machines to become obsolete.

The average age of the machine tools in Cyclops works must be about 35 years, some of them dating back to the 80's. Similarly the machinery in the planing shops at River Don works is considerably older than the average machine in the commercial departments. Last year two big planing machines were taken out of storage and rebled in preparation for the increase in armour plate work, the machines being about 25 years old. Although so old they were no more dated than the other machines in the department. This does not infer that the machines used on armour plate work are out of date, but only that they have a much longer useful life than general machinery.

4. Associated companies.

All the heavy arms firms are linked up with companies which supply them with raw materials, or equipment, or serve as an outlet for their products. Hadfield owns Bean Industries Ltd. for the disposal of some of its steel, Brown the Carnforth Iron Co., who supply it with pig iron; Armstrong Whitworth has Armstrong Saurer, Armstrong Siddley Motors, Craven Bros., etc. Whilst this association is presumably for the benefit of the parent company it is possible for it to prove a disadvantage on occasions. The tendency is for all requirements to be supplied by the associated company, whether its product is the most suitable or not. Last year the management of the machine departments in E.S.C. was forced by higher authority to buy certain new lathes from Craven Bros., although it was a well known fact that its lathes were vastly inferior in quality and performance to others which had been offered.

In this connection various contracts between distinct firms should be noted. Quite frequently industrial concerns arrange trading on a reciprocal basis. Thus E.S.C. has a very large trade with Stanton Coal & Iron Ltd., in the manufacturing of steel moulds for casting iron pipes. In return E.S.C. buys all its coal from the Stanton concern. Whilst this mutual trading is of mutual benefit there may be occasions when it is disadvantageous in part—different furnaces, different boilers, and different departments need different qualities in the coal they consume. On sundry occasions the Stanton coal was known to be not the most suitable in certain departments, but no change was made as all coal had to be purchased from that concern.

5. Monopoly.

As a government factory would have a monopoly in the production of armaments, it might be suggested that the same criticisms can be levelled in that direction as against the closely linked steel arms.

But one point should be noted. The big steel firms get together to arrange for quotations to the Ministries, and also collaborate in the preparation of "costs." Admittedly there are government auditors who investigate the various accounts and who, on occasions, cut the prices charged by 50 per cent. But the Government is in no position to quarrel seriously with the arms firms on the prices of materials supplied, and assuming that the auditors are competent enough to criticise costs, then it can only be assumed that they are prepared to pass a blind eye over some of the "slightly" inflated accounts.

These various points are sufficiently clear indication of the ineffectiveness of a joint system of armament and commercial manufacture by private firms.

A concentration of armament production under the control of the Government is not only practicable but would be more efficient and less costly to the British taxpayer.

There can only be one serious objection to such a concentration and that not a technical one; the question of strategy. To have all production centred in one works would mean the focussing of aerial attacks in the event of war and a corresponding vulnerability. But it has been pointed out that manufacture of the larger portion of arms steel is already carried out in the Don Basin and the works cover an area large enough to provide an easy target from the air. The obvious policy is to build a new works of the latest type, designed specifically for the production of armaments only, and situated away from the present heavy steel works, either in another part of Sheffield or removed to a safer spot on the North West coast, near to haematite pig iron supplies, and a government yard for the scrapping of warships, thus securing scrap armour plate steel supply. The present armour producing departments of the heavy steel firms would be taken over and, if efficient enough for the purpose, retained as reserve capacity, or if not efficient then certain of them would be overhauled and made so. The works to be erected would have an open hearth steel melting plant of approximately the size of the present E.S.C. plant.

This would have an output sufficiently large to meet all normal armament steel demands and, in the event of war, orders would be placed for steel with the high quality steel producers. There would not be the same dependence on the armaments group as many firms are now making high quality steels; the firms who failed the country so badly in the last war would not be permitted to repeat the offence. With the centre of the armament industry governmental control expansion would be very rapid, and the difficulties of such expansion would be very minor ones compared with those to be contended with if the industry remains in private hands.

The vast increase in the automobile industry since the War puts a reserve armament producing capacity in the hands of the Government far greater than anything hitherto available. From Dr. Addison's story it is obvious that we could not have carried on the War without a Ministry of Munitions; it appears equally obvious that we ought to have that Ministry in action before the commencement of another. A survey of the existent armament steel firms will reveal that they have not such a very large productive reserve in hand themselves; so called rationalisation has closed down works and, again directing attention to the leading firm in the group, it is worth while to see what Vickers' subsidiary, English Steel Corporation, can offer by way of production. In 1929 on the formation of the company it possessed the following steel-producing plants:—

River Don Works: 12 O.H. furnaces, 3 electric furnaces, 1 steel convertor, gas and coke crucibles.
Grimesthorpe Works: 3 O.H. furnaces, 2 electric furnaces.

Penistone Works: 5 O.H. furnaces.
Openshaw Works: 10/12 O.H. furnaces, 2 electric furnaces, gas crucibles.
Cyclops Works: Crucibles.

To-day it possesses the following only:—

River Don Works: 4 O.H. furnaces, 3 electric furnaces.
Grimesthorpe Works: 3 O.H. furnaces, 2 electric furnaces.
Openshaw Works: 1 electric furnace, gas crucible.

E.S.C. would therefore have to seek assistance at a very early stage of an abnormal demand; its steel-producing capacity together with its subsidiary companies of Darlington Forge and Industrial Steels can amount to no more than 200,000 tons per annum, yet shell steel alone demanded 12 million tons per annum during the later part of the War. An association with other firms would be much more easily and quickly established by the Government than by the arms group.

So far as peace-time production is concerned it would be difficult to envisage a large government factory as inefficient as the heavy steel firms are to-day, in spite of their much vaunted reorganisation. One can hardly imagine a state factory

spending well over £100,000 per annum on coal and not having a fuel expert in its employ. No one can foresee it decaying to the extent that the maximum efficiency of any of its hydraulic pumps reaches the princely figure of 23 per cent. Information has already been given bearing upon certain of the disadvantages arising from the joint manufacture of arms and commercial steels so little further need be said here. Only slight reference has been made as yet to the stages of armament manufacture subsequent to the steel works which are generally of higher efficiency than the latter and comparing favourably, so far as their technical methods are concerned, with the Royal Ordnance Factories and State Dockyards.

Sir Eustace D'Eyncourt has given his considered opinion upon the respective efficiency of private and state manufacture and ascribes the better results of the former largely to the more favourable atmosphere existing for employees. He quotes the extent to which the State has drawn upon private trade for inventions and personnel, and gives the Armstrong gun, Parsons steam turbine, wireless, the internal combustion engine, and the aeroplane as typical examples of the products of private enterprise. Not even he, however, suggests that it would be a desirable thing to hand over the Navy to private enterprise, and we feel sure that he will consider the State concerns of the Navy and Air Force to be efficient. It would indeed be a surprise were they not so, considering that 99 per cent. of productive activity is privately directed. It can also be noted in passing that only the first of these inventions was the product of an arms manufacturer. There is no reason why the State should not continue to draw upon the inventive resources of private trade; a monopoly of engineering brains is not possessed by the arms firms as was amply demonstrated during the War when novices at shell production were able to produce so much more cheaply than they. The biggest improvement in armour plate manufacture, coming at a time when the shell appeared to be winning the duel handsomely, was the process of cementation, a discovery not of an arms manufacturer but of an American civil engineer by the name of Harvey. The country would therefore not be divorcing intelligence from arms production by the withdrawal of the private manufacturer from that sphere of activity. And as for that enervating atmosphere of a state factory which Sir Eustace fears will give only an average mediocrity of production, surely "the several small points which tend to damp down the ardour and keen inventive capacity in the Government service" are capable of rectification. The Admiralty and War Office through their dependence upon private manufacturers have not had occasion to attack these problems, but different circumstances would affect their administrative outlook and it is only reasonable to suppose that they of all people would see that the production and design of arms were on an efficient footing.

To sum up this statement of practicability regarding the heavy armaments industry:

The case of the heavy armaments industry differs from the other industries because it is the more closely linked with oldest industrial factory system. While it has been clearly established in the review of this industry that on the technical side the heavy arms industry can be differentiated from the general body of industry, yet many of the works are very closely linked with engineering works. The works are scattered over a wide geographical area and associated with other sections, both for technical and financial reasons. The technical discussion given leaves no doubt that we can separate these sections. Therefore nationalisation of the armaments section alone can occur. However, we are of the opinion that the complete nationalisation of the iron and steel industry is the only valid method of approach, because even if the armament section is nationalised, the position might arise in which this section dealing in highly specialised products would be under the control of a complete iron and steel trust which would be suppliers of the fundamental material for such products.

The type of control suggested must be safeguarded against such a state of affairs. This could be achieved by strict inspection of the books and works, etc., of the firms involved. The industry should be under the control of boards constituted as follows:—

- (a) Representatives from Government Departments concerned (technical, administrative and financial);
- (b) Representatives of managerial and administrative sections from the works themselves.
- (c) Democratically elected worker representatives from the workshops involved.
- (d) Representatives of the ancillary non-military industries which are responsible for the raw material supplies.

The relations with research organisations must be carefully worked out for many reasons, but especially in order to see that military research is not carried out in the civil research department or financed from the civil estimates, and also to prevent the type of technical inefficiency which is so prevalent in the privately controlled armament industry to-day.

This procedure would undoubtedly prevent the widespread corruption which has been shown to exist, increase the technical efficiency, and, as Dr. Addison has shown, reduce the financial cost to this country.

2. THE PRACTICABILITY OF THE PROHIBITION OF THE PRIVATE MANUFACTURE OF AND TRADE IN CHEMICALS AND EXPLOSIVES AND THE INSTITUTION OF A STATE MONOPOLY.

The terms of reference of the Commission in Clause I call for consideration and report upon the practicability of state monopoly of the armament trade. The practicability of state monopoly is conditioned by both economic reasons and by military expediency.

The problem of nationalisation as applied to the industry of chemical warfare, with its two main groups of lethal substances and explosives, may be regarded as simpler than in the case of the aircraft industry and considerably simpler than in that of the heavy armaments industry. The industry of chemical warfare has been shown to be under the virtual control of one great combine, Imperial Chemical Industries, Ltd.

But just as in the aircraft industry civil aircraft may be converted to military aircraft, and the same factories and technical equipment used for both, so in the industry of chemical warfare and explosives industry, chemical factories, especially dye-works and factories connected therewith, can be very quickly adapted to the manufacture of poison gases. In the dye-works many of the intermediates are themselves lethal chemicals, which are capable of immediate use in chemical warfare, whilst others are intermediates from which lethal substances can be readily prepared.

The problem is rather different when the manufacture of explosives by the chemical industry is to be considered. The plant used for the production of industrial explosives and sporting ammunition is already separated to a great extent from that which produces military ammunition. But it is nevertheless correct to say that the differences between the pacific and military uses of explosives (excepting as propellants) are so ill-defined that it is difficult to separate them.

The existing organisation of the industry, with special reference to this problem of the inter-relatedness of commercial and military production, has already been described in another section.

Without access to complete information it is plainly impossible, and certainly undesirable, to put forward any detailed scheme of nationalisation. The policy has been adopted, therefore, of indicating those main problems without an adequate consideration of which it is maintained there can be no satisfactory fulfilment of the terms of reference of the Royal Commission.

As the attitude of I.C.I. and of its shareholders must be those of a concern solely engaged in profit making, its reorganisation takes no account of great local disturbances of trade and dislocations of labour,

with a nett loss to the state, excepting where good commercial policy makes such consideration essential, and it cannot, obviously, make any provision beyond that required in commerce for productive capacity to meet national defence.

In addition it is a danger to national interests that an organisation of this size and influence should make private and secret commercial treaties very often dealing with supplies of essential war materials which should be under state control.

An interesting, and on the whole, admirable organisation has been built up which could most usefully form a basis for state ownership, with little organisational change. The fact that the technical control both on the manufacturing and sales side is in the hands of a highly trained managerial staff means that personal goodwill, the holding of which might form some difficulty in the intermediate stage of state control of other industries, does not create a serious problem here. The major loyalties could be directly transferred to the state.

The following groups would seem to be the natural ones for the control of the chemical industry:—

(i) Dyestuffs (for dyestuffs, related organics, synthetic rubber, etc.).

(ii) Syntheses (for ammonia and ammonium compounds, coal, oil, cements and all high temperature/pressure syntheses).

(iii) Explosives (for industry and military explosives, nitro-cellulose, collodion, lacquers, etc.).

(iv) General Chemicals (for alkalis, acids, bleach, chlorine, and related organics).

(v) Non-ferrous metals (for copper and similar non-ferrous metal tubes, sheets, strip wire, etc., and ammunition casings). This group is debatably chemical, but is included because of common ownership.

(vi) Miscellaneous division (for handling the production of final materials discovered by the industry, from the intermediates supplied by the other groups, if these final products require exceptionally different mechanism and organisation).

Such a series of groups would have to be co-ordinated both for sales and production facilities with the following:—

(i) Gas Works and Coke Oven Plants.

(ii) Oil Industry.

(iii) Fermentation Industry.

(iv) Soap Manufacture.

(v) Cellulose Industry.

It should be pointed out that such grouping is not dissimilar from the main grouping of existing chemical interests.

There remains the problem of the export market, in connection with which the essential interchangeability of certain products admittedly makes many complications. To include any of the secondary materials in this category would be insufficient and raw materials as well as finished goods should be included.

The intermediates, both in the manufacture of poison gas and of explosives, must also be considered, since, if this side of export trade be omitted, it will be seen that the way is left open to a more geographical redistribution of production, particularly in view of the present ramifications of the industry.

In the case of explosives, the varieties are so great, and the difference between pacific and military use (except as propellants) so ill-defined, that it is impracticable to separate them.

It might be stated here that the size of the explosives trade must not be overlooked. A total of 20.8 per cent. of high explosives and propellant manufacture is exported and 50.6 per cent. of the military small arms ammunition was exported in 1930 as against 38.4 per cent. in 1924. Over 60 per cent. in value of the present explosives manufacture is for purely military purposes, and these supplies are the most profitable. The value of the explosive industry is not exactly known, but it may be assessed at about £20 million with a personnel of 9,000.

In the case of poison gas, there are certain poison gases which have commercial uses and others none. The details of poison gases and explosives are tabulated below.

Considerations that we have borne in mind are the reasonable technical division in type of process, and the favourably low capital costs of our proposal at this dividing point.

It is proposed:—

(a) That all explosives (excepting black gunpowder) whether for industrial or military purposes be manufactured by the State from the raw materials and intermediates supplied by the private chemical manufacturers.

(b) That licences for export of all raw or semi-finished materials likely to be used in the manufacture of explosives or poison gases be issued by the State. A schedule gives the details of these commodities.

(c) That the private manufacture of certain poison gases be prohibited. The reagents in question are given in the schedule of commodities.

Schedule of Commodities requiring licence for export.

(1) Explosives manufacture (Intermediates). Sulphuric acid, nitric acid, refined glycerine, alcohol, toluene, ammonia or ammonium compounds, picric acid, acetone.

(2) Lethal gases, solid and liquid (Intermediates). Bromine, xylene, acetone, picric acid, sulphur chloride, ethylene, acetylene, arsenious chloride, sodium nitrite, sodium arsenite, sulphur dioxide, methyl sulphate, pheno-sulphuric acid, white arsenic, phenylarsenic acid, phenylarsenous acid, benzene diazonium chloride, diphenylarsenic acid.

(3) Lethal gases, etc. Chlorine (Phosgene, export forbidden).

Schedule of poisons prohibited for private manufacture or recovery for sale.

Sulphuretted Hydrogen, Prussic Acid, Benzyl Bromide, Xylol Bromide, Bromacetone, Chloropicrin, Mustard Gas, Lewisite, Diphenylchlorarsine, or any other gas, liquid or solid, of which a lethal dose is less than 10 milligrammes per litre of air, excepting chlorine and phosgene.

The Basic Methods for Control of the Chemical Industry.

The consideration of the major technical aspects in establishing this control in relation to the different problems arising will now be considered.

The export of lethal substances and of explosives would be regulated, the licensing of these materials being the function of an Exports Licensing Department with Board of Trade and Foreign Office representation. Thus the worst abuses of private trade in arms may be overcome.

The type of organisation which has been suggested is not dissimilar from the main grouping of existing chemical interests, the change would not produce any adverse reaction upon other industries, and we believe that the ratio of economic change to peace security brought about by its means is very favourable.

To rely upon the type of licensing in use at present is not enough. That system has allowed abuses of all kinds to flourish.

It is, however, possible to devise schedules of materials that should be subject to licensing for export or for export prohibition.

We do not believe that it would be sufficient to rely on the licensing of explosives for export. Their varieties are so great, and the difference between pacific and military use (excepting as propellant) so ill-defined, that it would be impossible to check their end, and only the complete elimination of private profit from the manufacture of explosives would meet the case. In addition, intermediates for explosives manufacture would need to be licensed to control overseas finishing. The great importance of full control of the explosives industry must be emphasised.

The licensing for export, or prohibition of manufacture or export of poison gases, though it does not meet completely with the full requirements of control is yet better placed in that respect than are explosives and ammunition. They are more susceptible to control in that manner, as the special requirements for carriage makes declaration of identity imperative, and since chlorine, the one exportable gas upon our lists, is much less efficient for gas warfare than many others, it is not likely to be used as a direct war agent. In order, therefore, to use it for war purposes reaction plant is needed to produce the more virulent gases. It is more usual to find the abuses of the arms trade in connection with final products rather than in intermediates.

Therefore, though we believe that the full control of the industry is essential to a complete scheme, and that such control would give a more than equivalent security, it is our belief that the state monopoly of the explosives industry and the licensing and manufacture of poisons, would give a greater measure of security per unit of expenditure and industrial interference.

We believe that the dangers involved in the private manufacture of arms are of an order that would justify the state monopoly of manufacture, and consider that the insurance against those evils is not to be considered as involving high capital outlay.

In order of advisability of control we would place:—

- (1) Explosives.
- (2) Poison gases.
- (3) Intermediates.

To cover these materials, we have shown that it is advisable to establish a rigid public and efficient control in the following industrial groups:—

- (i) Heavy chemicals.
- (ii) Dyestuffs.
- (iii) Explosives.
- (iv) Portion "Fine Chemicals."
- (v) Portion "Cellulose."
- (vi) Portion "Paints and Varnishes."

These schemes of segregation are incomplete, but it is claimed that they afford a working basis for a more complete investigation in which the services of expert panels would produce more detailed results.

The type of control which seems to us to be essential would consist of boards on which were represented the government officials, both technical, administrative and financial, representatives of the technical, managerial and office (accountancy) staffs, and also representatives of the workers elected democratically by secret ballot in the factories. If the complete nationalisation is not accepted then representation would be given to the investor. These boards would in all cases be of four main classes, Co-ordination (for different products for various factories, e.g., intermediates), National, Regional and Factory. All the management of the nationalised industries to be subject to Parliament so that debate could occur and questions be asked with regard to its position and management.

3. THE PRACTICABILITY OF A PROHIBITION OF PRIVATE MANUFACTURE OF, AND TRADE IN, AIRCRAFT, AND THE INSTITUTION OF A STATE MONOPOLY OF SUCH MANUFACTURE AND TRADE.

The nature of aircraft production and development and the nature of the aircraft industry have been described in the preceding pages.

Military and Civil Aviation.

The industry is of a type and at a stage of development where the problems of nationalisation are fewer than in the heavy armaments industry, for example, the factories are all purely aeronautical and they are mainly dependent on government orders excepting de Havilland and the very small firms. The problem of civil aircraft, however, and their convertibility to military aircraft raises special issues for the aircraft industry. The production of civil and military aircraft might well be separated, but in our opinion the case for abolition of private

trade extends to the civil as well as the military section.

The problem of adaptability raises vital problems from the international point of view and more particularly would seem to indicate the doubtfulness of any solution of the problem independently of a scheme for the international control of aviation. Any trade in transport planes may be a virtual arms traffic. The private trade in civil planes may easily stimulate rivalry in air fleets, and in so far as civil aircraft have, or can easily be converted to have, real war value, the private trade would be indirectly working for a race in potential armaments. It is true that there is some difference of opinion on the question of the convertibility of civil to effective fighting aircraft. The transport plane is immediately useful for indiscriminate bombing of cities in cloudy weather, or with an effective escort. It can also be used for staff and other transport purposes. It is not very readily converted to a gun-protected bomber, but civil planes can be designed with conversion primarily in mind, and it would be difficult to check this. The Air Ministry has ordered aeroplanes in convertible forms, and firms are increasingly producing planes which can be converted. Recent aircraft company advertisements have openly stressed the fact that their civil machines are convertible to war planes.

It is neither our duty nor our wish to put forward a detailed scheme for the nationalisation of the Aircraft Industry, or for the international control of civil aviation which would seem an essential corollary. Such a scheme could only be worked out on the basis of complete information which could only be obtained by access to the books and documents of the Air Ministry and the industry. But the following are indications of the main technical problems which are involved.

Research and Technical Development.

It is suggested that two distinct research organisations are required. One should serve the particular purpose of air force development, and the other would conduct general and fundamental research and aim at the development of commercial and civil aviation. While the first organisation would not normally publish its results, all investigations by the latter must be fully published and their laboratories and experimental plants open to inspection at any time. Close contact with both designer and user is essential. It is suggested that some method of organisation is desirable which would bring together, in deciding on technical policy, the Air Staff and the chiefs of design, production and research, for any scheme to be successful. It must be based on the proper co-ordination of knowledge and ideas in the fields of research, design, production and operation. It is this co-ordination which is defective at the moment, as it must be when the work is divided amongst the parts of a competitive private trade and a public service. Under the present system, trade jealousy inevitably prevents the component firms of the industry from sharing ideas and discoveries the combination of which, at any moment, might lead to the best available solution of the problem in hand. The Ministry and its great technical staffs are gravely handicapped in providing such co-ordination, for they labour always under the disadvantage of being prohibited from free communication in the interests of "fair" competition. This position would be greatly simplified by the necessity of complete publication.

Moreover secrecy, which is often important in the development of armaments, can be more easily kept inside a state organisation and as a corollary the information given to designers is not always so full as is desirable for their work.

Aircraft design is peculiarly empirical. Progress calls for a vast amount of experiment. The industry under the present system cannot undertake it all, and only does so to a very limited degree. The state is thus already responsible for an important section of development. State work ranges from research into the basic problems of aero-dynamics, etc., to the most straight-forward testing. Much

of it relates specifically to some design in hand; for example, the capacity of all small fighting aeroplanes to recover from a spin is now tested by small scale models in a "wind tunnel" at Farnborough.

The experimental work of the industry, on the other hand, is almost entirely confined to the design and construction of aeroplanes and engines. *Ad hoc* experimenting, of which there is already too little done, cannot be undertaken by the private industry, and in any case, the conditions of service in a small firm would not conduce to this work being well done. The problem of designing staff must be considered in this connection. A result of the large number of independent units in the industry in relation to the volume of work is a relative poverty in each designing staff. Not only do the firms not specialise as they might each on its own type of aeroplane, but they are unable to set their best men to specialise on parts of a type or particular aspects of a design. In the result, good general conceptions may fail from inadequate attention to detail or good detail be lost in poor general conceptions. More effective drawing offices could be built up in the bigger (because fewer) units made possible if the industry were nationalised.

Effect of Policy on Design.

The present policy of the Air Ministry is certainly open to question in the degree that it seeks progress through competition rather than co-operation. Its usual practice is to have three aeroplanes, and commonly five or six, designed and built in order to arrive at one design suitable for adoption for the equipment of the Air Force. Consideration should be given to the greater efficiency and economy which would result from devoting the same amount of effort to a single design. It is not necessary to go to the extreme of excluding competition, especially in partial design, or to exclude the building of some highly experimental machines and a certain amount of rejected efforts, which are not necessarily fruitless. In fact, in a nationalised industry competition between its servants should be organised and can be without trading competition. But it is suggested that the production of so many experimental machines at the minimum of cost on each and the rejection of at least two-thirds of these hastily conceived products is neither efficient nor economic. Much more might be learnt if the rejects were neither so readily produced nor so summarily rejected, which means for a given expenditure a greater concentration and a smaller production of models, and implies fewer drawing offices.

This is an age of mass production, and with the advent of metal construction aircraft can and must be subjected to such a technique. Design and production by a variety of relatively small firms does not lend itself to such a development, and already signs are not lacking that, even without nationalisation, production will soon be concentrated in a few large firms or combines. This process of rationalisation which is impeded by the present policy of keeping the maximum number of firms floating by dealing out the contracts for experimental machines (with the doubtful object of providing for expansibility in an emergency) could be vastly expedited by immediate nationalisation.

Patents.

Some consideration must also be given to the problem of patents. The home market in purely aeronautical inventions ceases with the nationalisation of design, production and sale. It is suggested that an Inventions Exploitation Board might be instituted to receive and stimulate the development of useful ideas and to adjudicate upon the value and the appropriate award. Such a board could also deal with the problem of the present revenue from overseas in royalties which, under nationalisation, would be the property of the state. Under the present system patents are commonly taken out in the names of a specified person or persons (generally regarded as the real inventor/s) and the company for which he works. The company in these cases probably reaps the lion's share. In the case of

government employees all patents are assigned to the department concerned and the inventors may be rewarded:

(a) by an *ex gratia* award for service use, and/or

(b) by the reassignment of the commercial rights, the Crown retaining the right of free user. Thus the machinery for encouraging invention, under nationalised control of the whole industry, is already in being in embryo in the Departmental Committees which are used to recommend these awards. The Court of Appeal from the Departmental Committee is provided by the Central Committee on Awards to Inventors.

These are the main technical problems essential for detailed consideration in any adequate study of the problem as outlined in the terms of reference of the Royal Commission.

Economics of the Problem.

Further, the economic aspects of the problem warrant careful consideration. Mention has already been made in the financial memorandum of the financial aspects of the problem of the present wave of speculation which characterises the aircraft industry. Such speculation at a time of expansion is inevitable under a system of private firms to whose interest such expansion is a vital factor. By nationalising the industry such speculation would be obviated, with great advantage to the state, which would be saved the money spent to-day in excessive profits made by a competitive industry.

Further, the present arrangement is fundamentally ineffective in ensuring that costs are kept to the minimum. A private industry can organise itself in various ways and stages to cut out the safeguard for the public purse that competition is wrongly supposed to provide. It can have friends at court. Disturbing comment by public audit has been made on more than one occasion upon the non-competitive way in which contracts for aircraft have been placed, while production by the one-time aircraft factory of the state was stopped after a short life and this possible check on trade prices removed. Most competitive industry operates with a number of purchasers as well as a number of producers. In the case under discussion there is virtually only one purchaser, and this invites influence, in one form or another, to dominate success in the peculiar market. Moreover, it is the general practice to place orders, for obvious and cogent reasons, with the firms responsible for the design, and the choice of design must essentially be governed in almost every case by consideration of technical excellence without much regard for cost. Thus, the competitive element in controlling costs is in fact less present than it might be in a public service which would be more under control by the purchasing authority.

The Export Trade.

There remains the problem of the export market which is almost entirely confined to military aircraft. The arguments used for the export of military aircraft are:—

(1) that we need exports to obtain the necessary imports, and aircraft contribute to the total we can sell in the world;

(2) that the export trade in aircraft assists our aircraft industry to meet efficiently our needs for national defence—

(a) by increasing the volume of its production, and
(b) by the stimulus of competition that it provides, and

(c) by increasing the potentialities of expansion

(3) That some big power must equip small powers, unable to equip themselves, in a world which still finds national armaments needed.

As regards (1), the contribution made by aircraft to our total exports is very small and might be disregarded if the question at issue were confined to aircraft; but it is more likely to present itself in the form of the general trade in arms which involves a bigger figure, although apparently not very big.

As regards 2 (a), since the increase in the total volume of aircraft production due to exports, in-

cluding the Dominions, is only about 20 per cent., the effect of exports outside the Empire must be small, and better results would be obtainable by a concentration of our production on a smaller number of units; it is the production per unit which is the important factor in production costs. It is argued elsewhere that this concentration would increase the efficiency of design.

The 20 per cent. increase in production due to exports does, of course, yield a corresponding capacity for immediate expansion in emergency, the most real advantage accruing from exports; but this advantage is not of great moment in the light of the actual figures.

But the argument that export stimulates competition, when applied to military aircraft, is clearly specious, and special pleading, as we have shown elsewhere. For the designs exported are old designs which have been successfully applied to our own service use.

As regards (3) this is an argument which is mainly based on the requirements of vested interests in private industry. And it may be asked whose interests are served when the small powers have been so equipped. This point is really the same as the general problem of relationship of small nations to other forms of armaments. It is discussed most fully in the section dealing with international control.

To sum up, any possible advantages which may be gained by the export of military aircraft are easily outweighed by the evils which have occurred as the result of such traffic in international affairs.

Conclusions.

This memorandum has shown:—

(1) That while the complete state control of the aircraft industry would be the best possible solution, it is also possible to arrange for the state control of the military section alone. It has also been shown that the present indirect control by the Air Ministry of the industry is most ineffective and leads to financial and technical inefficiency.

(2) That the complete co-ordination of military research and development under one authority is essential for a maximum efficiency and progress. The separation of the research organisations for military and commercial purposes is essential especially for the efficient financial control of government expenditure on armaments.

(3) That design effort which is at present dissipated among a number of firms is hampered by the lack of specialisation which would be possible with a greater degree of concentration.

(4) That the present relationships between government and firms *re* patents is very unsatisfactory.

(5) That the export trade, which in any case is not desirable, is not such as to present any special difficulties.

In conclusion it is maintained that the prohibition of private manufacture of and trade in aircraft, and the institution of state control of such manufacture and trade would result in progress in invention and development, in the saving of expense and in the achievement of a greater standard of efficiency. Only under some scheme, of which we have indicated the main technical problems to be considered, can there be the necessary centralisation of research, design and construction which is so obviously lacking in the present system.

The basis of the type of state control which seems to us to be essential would consist of boards on which are represented the government departments concerned (both technical, administrative and financial), representatives of technical, managerial and office (accountancy) staffs of the industrial units concerned, and also representatives of the general body of workers in these units, elected democratically by secret ballot in the factories themselves. If the complete nationalisation of the aircraft industry is not accepted then representation would be given to the investors in these industrial units. These boards would fall into four categories, namely, National, Regional, Factory and Research. Particular care

should be taken to work out the representation of the various industrial units on the research council and of the co-ordination of research council's work with routine industrial work. All the council to be subject to the control of Parliament so that their development and management can be fully debated and discussed.

Conclusions.

In summing up this Part VIII certain basic schemes have been outlined for the guidance of the Royal Commission in considering the problem of practicability.

If a British Government wishes to have an armaments industry free from the inefficiency and abuses inherent in private manufacture, they can have it by taking over the industry, but the detailed methods are for the Commission or the Government to provide, although the Union of Democratic Control would find no difficulty in presenting such a scheme if they felt that it was their function to do so.

Since the Royal Commission may not see its way to accept these views, the Union of Democratic Control in order to assist it in its work has put forward certain modified systems of control which have been worked out in consultation with technical experts.

The approach may be summarised as follows:—

(1) Nationalisation of the Arms Industry.

- (a) Heavy Arms.
- (b) Chemicals and Explosives.
- (c) Aircraft.

Such nationalisation would have to be supplemented by control of the sources of raw materials, e.g., iron, nickel, etc.

(2) Nationalisation of the Armaments Sections of the Respective Industries.

The problem of separation of the production and process from normal industrial work has been dealt with and it has been shown that the technical problems involved can be overcome.

(3) Control through Licensing, Inspection and Publicity.

If the industry is still left in private hands, it is possible to increase control by the following means:—

(a) Improvement in the licensing system already specified in Part VII.

(b) Financial inspection and control.

(c) Separation of the financial arrangements for war and civil research with full publicity.

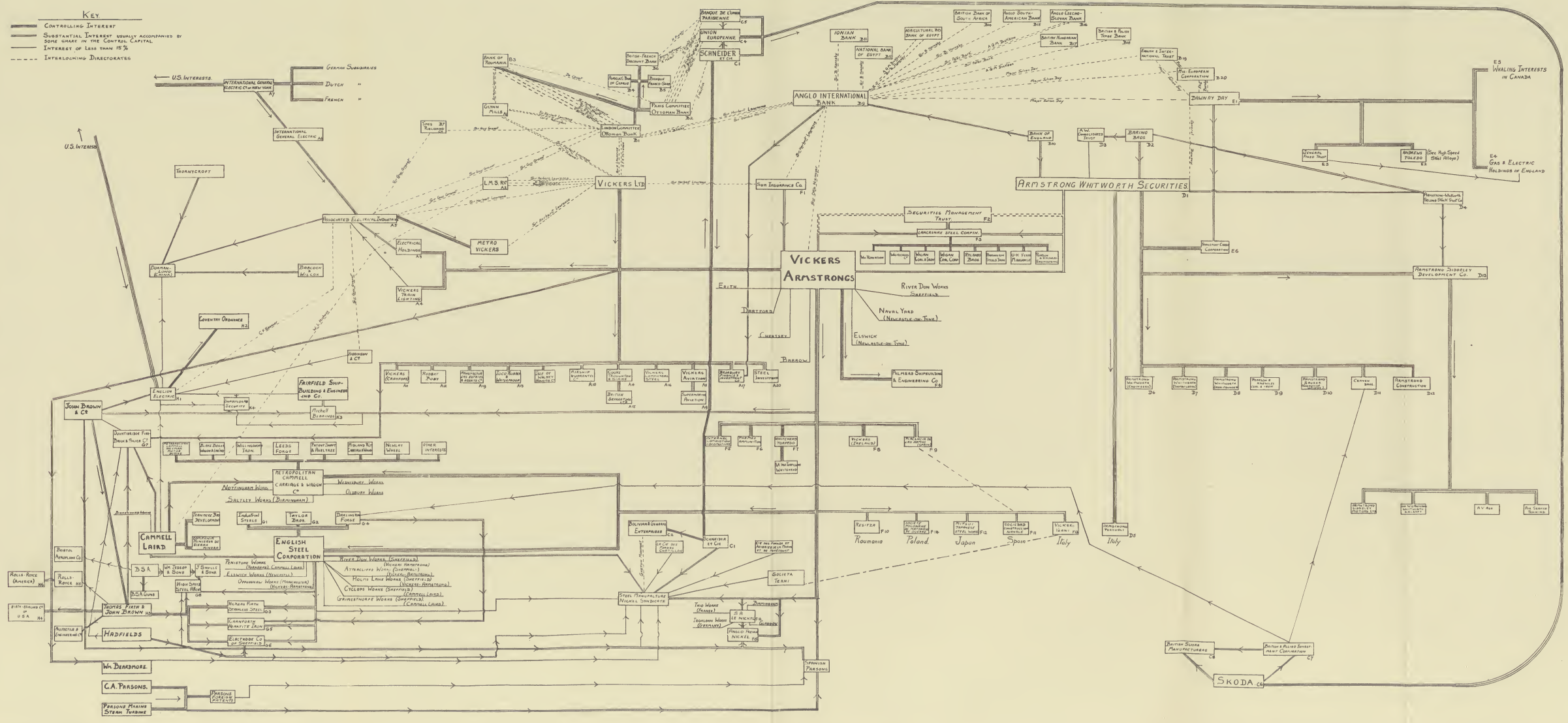
(d) Inspection and control internally by democratically elected workers in the firms concerned.

(e) International inspection and control.

In the above evidence the Union of Democratic Control has emphasised the inefficiency of the present system of private manufacture and the various abuses that attend it. It has been shown by Dr. Addison to be totally inadequate in time of emergency. The evidence of corruption and irresponsibility brought against the armament rings has never been rebutted. The system which closely connects the arms trade with the public service, while avoiding the salutary sanctions of public control, is contrary to every principle of responsible government. It gives rise to suspicion of evil even when evil may not be present and it makes it only too possible for interested parties to promote their interests in a way which increases national antagonisms and fosters the armament race which is admittedly one of the contributory factors leading to war.

There is no remedy for these evils unless the whole industry is taken out of private hands. The abuses are inherent in the system itself. It is not the function of the Union of Democratic Control to provide a detailed scheme of nationalisation, but we believe that the evidence we have produced relating to the chemical, aircraft and heavy armaments industries gives some useful indications of the lines upon which a scheme of nationalisation might proceed. Our inquiries leave us in no doubt that the technical difficulties of nationalising can be overcome if the Government wishes to nationalise. That the need is urgent and that there is no other way of removing the abuses of the present system we believe to be clearly and finally established.

Figure 1.



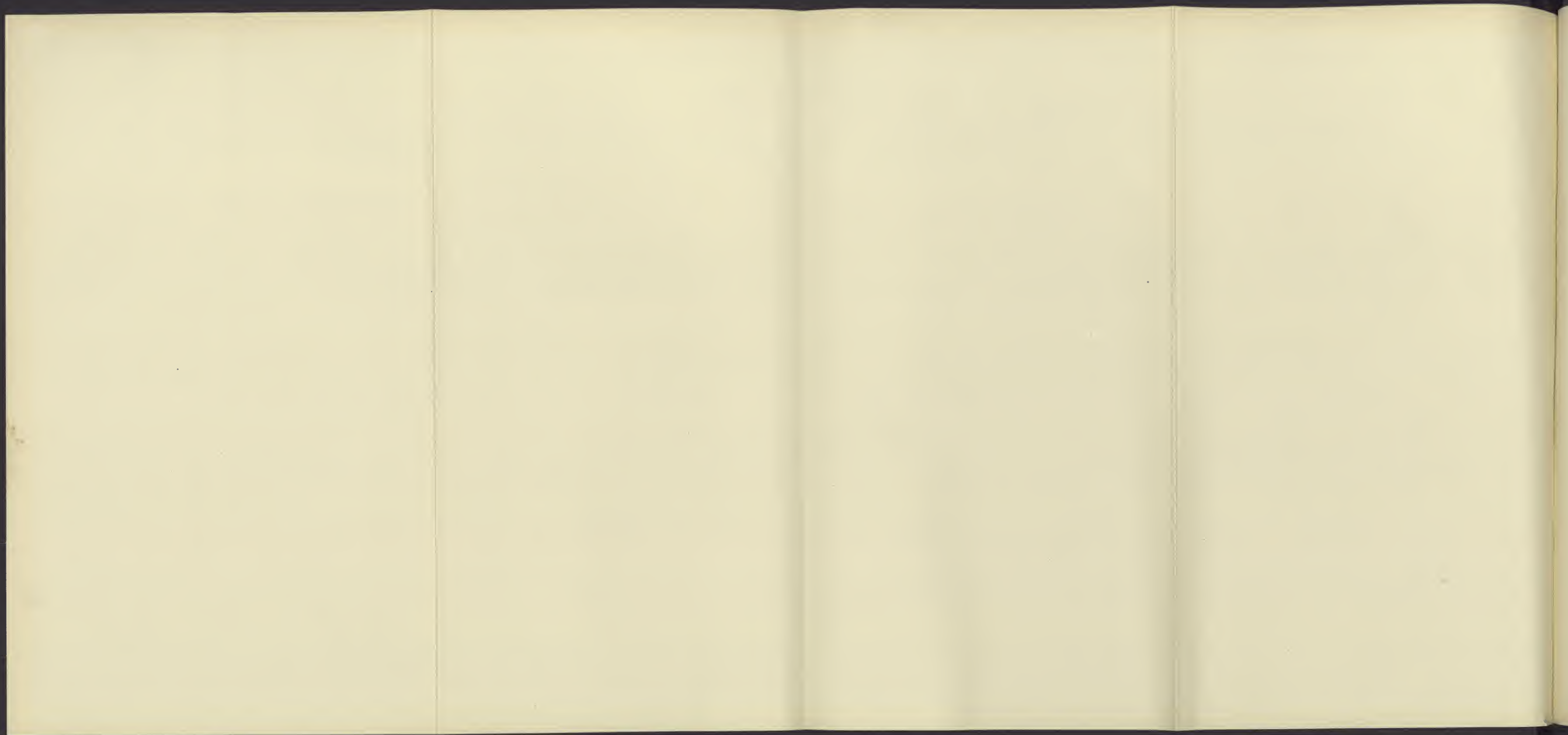
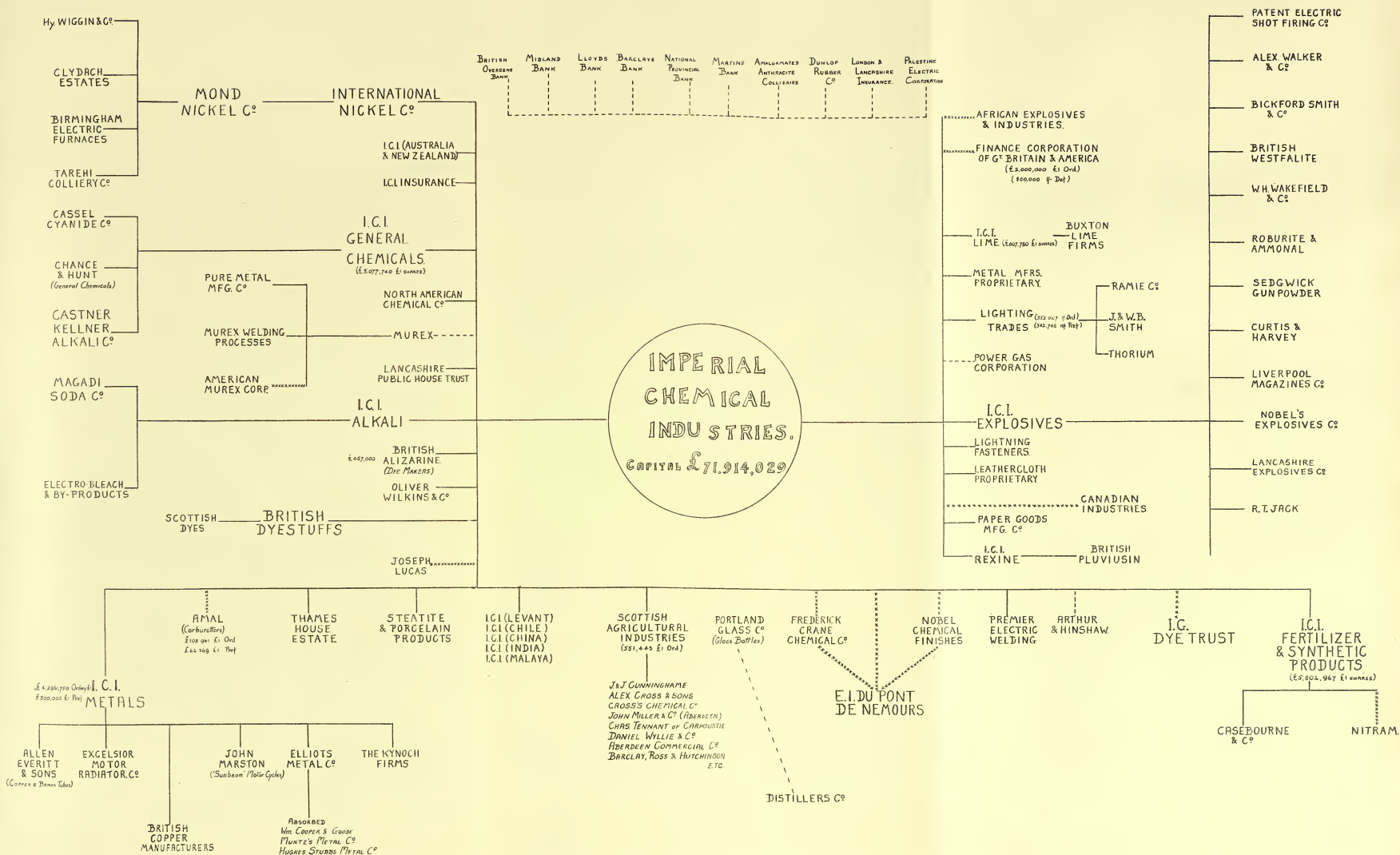


Figure 2A.



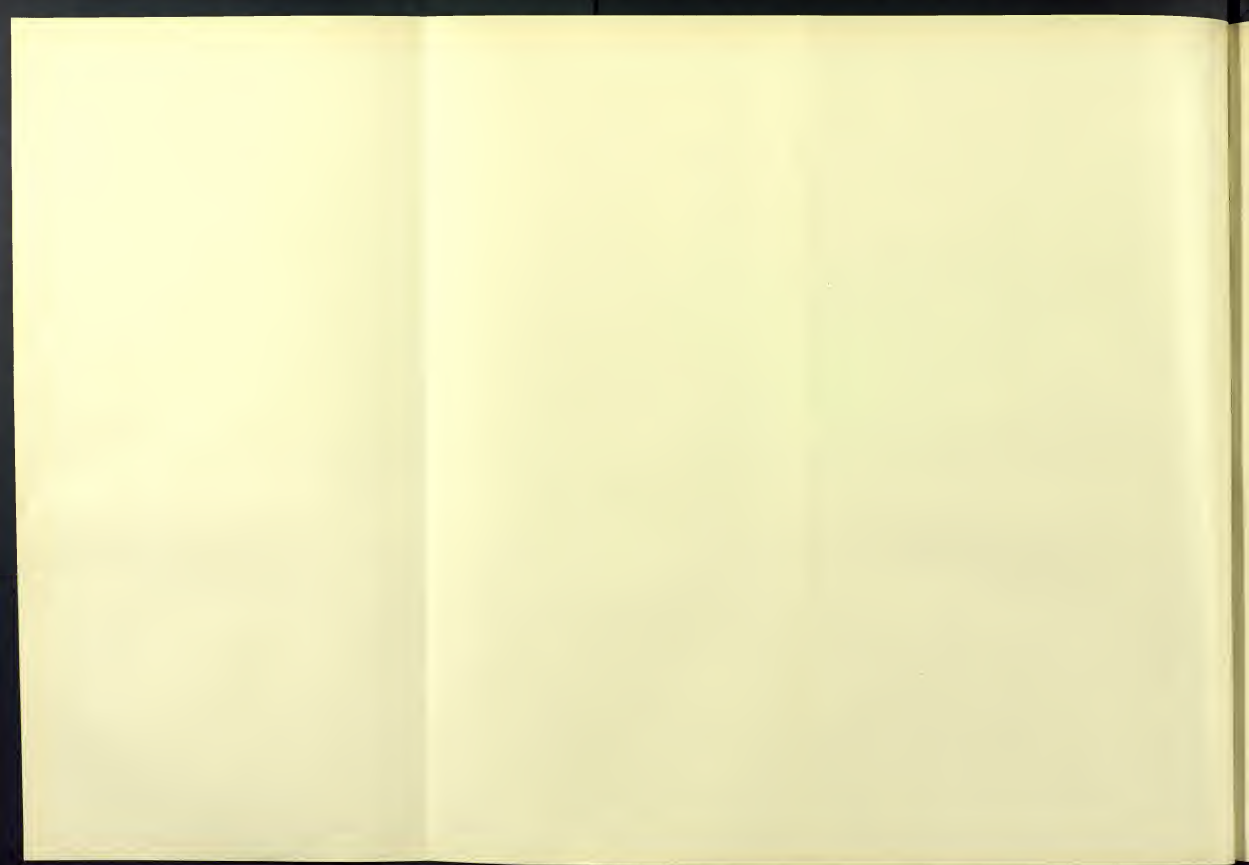
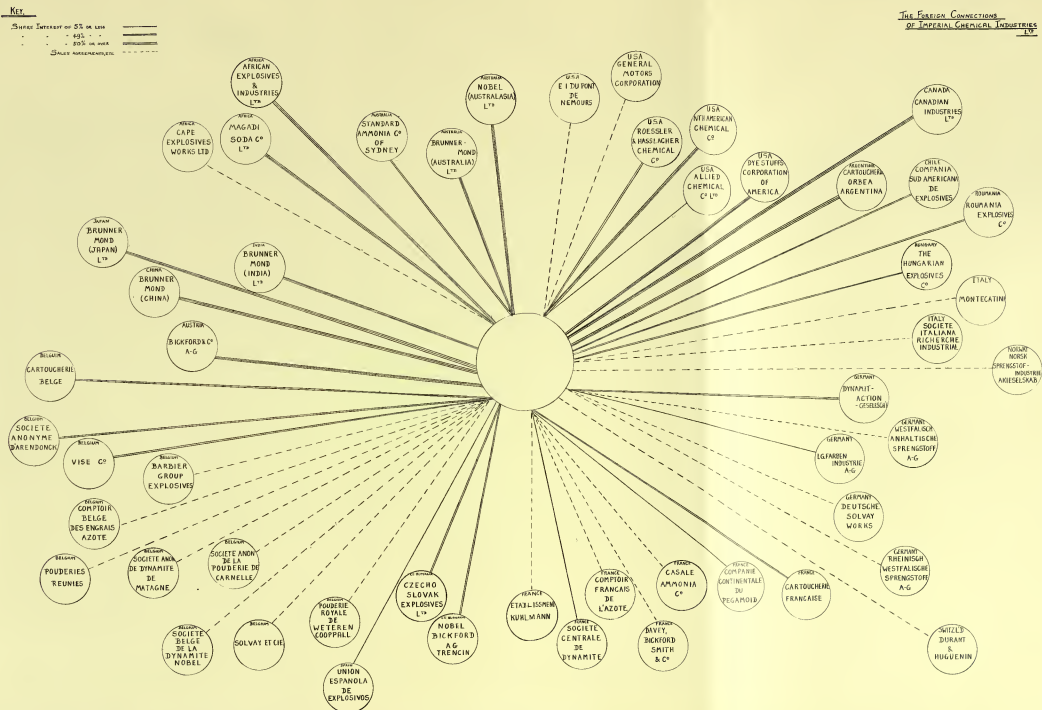


Figure 2B.



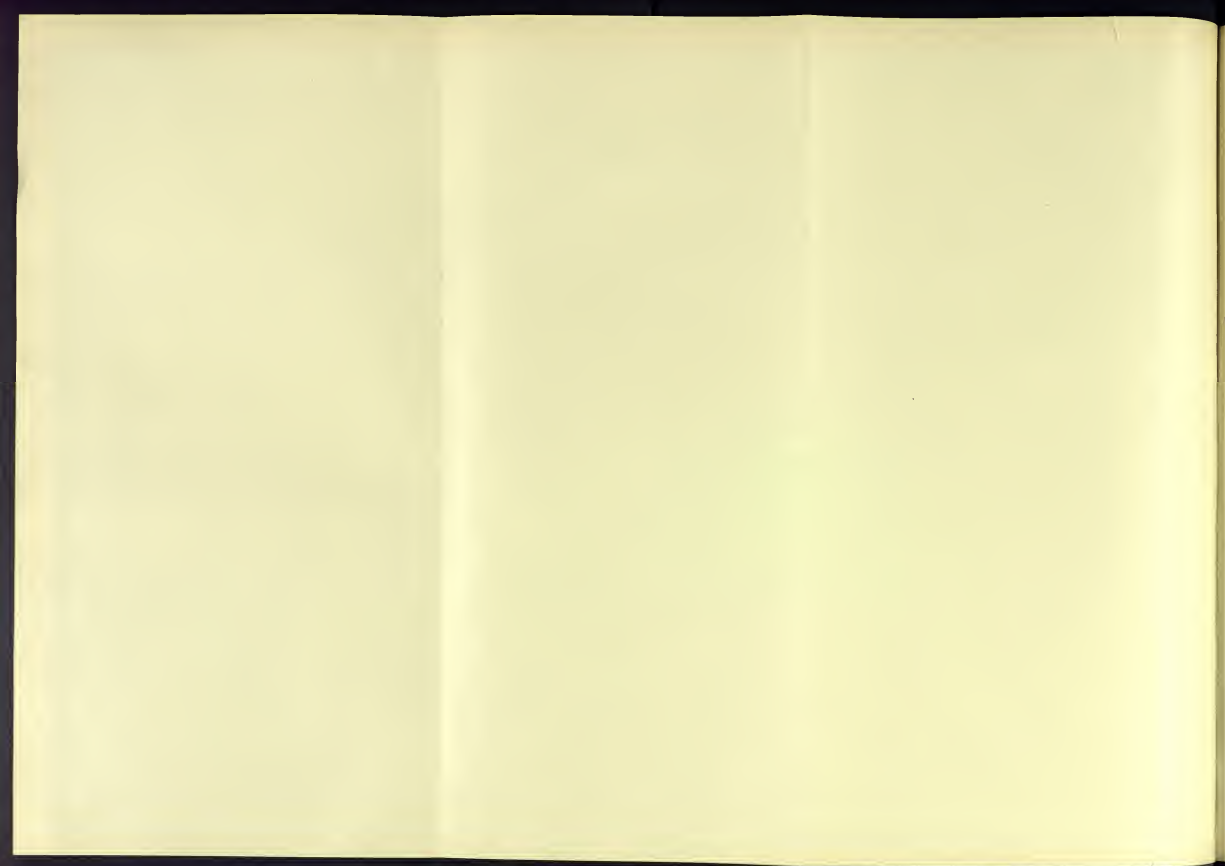


Figure 3.

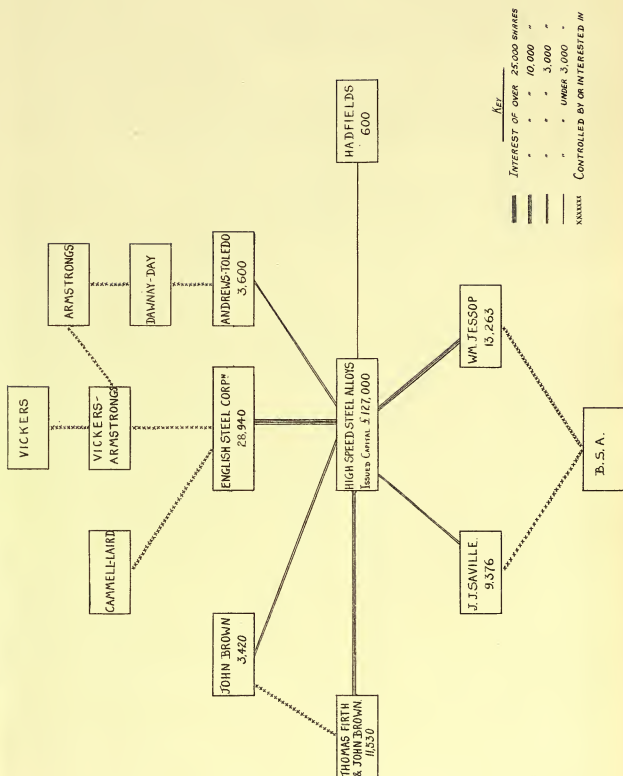
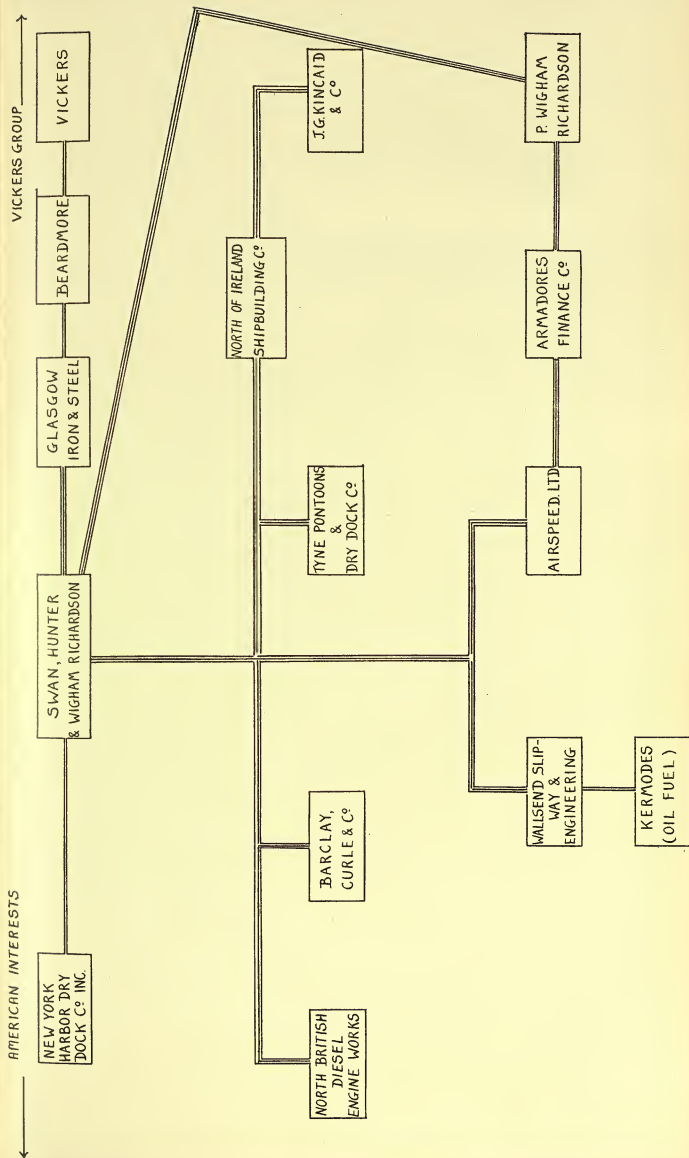
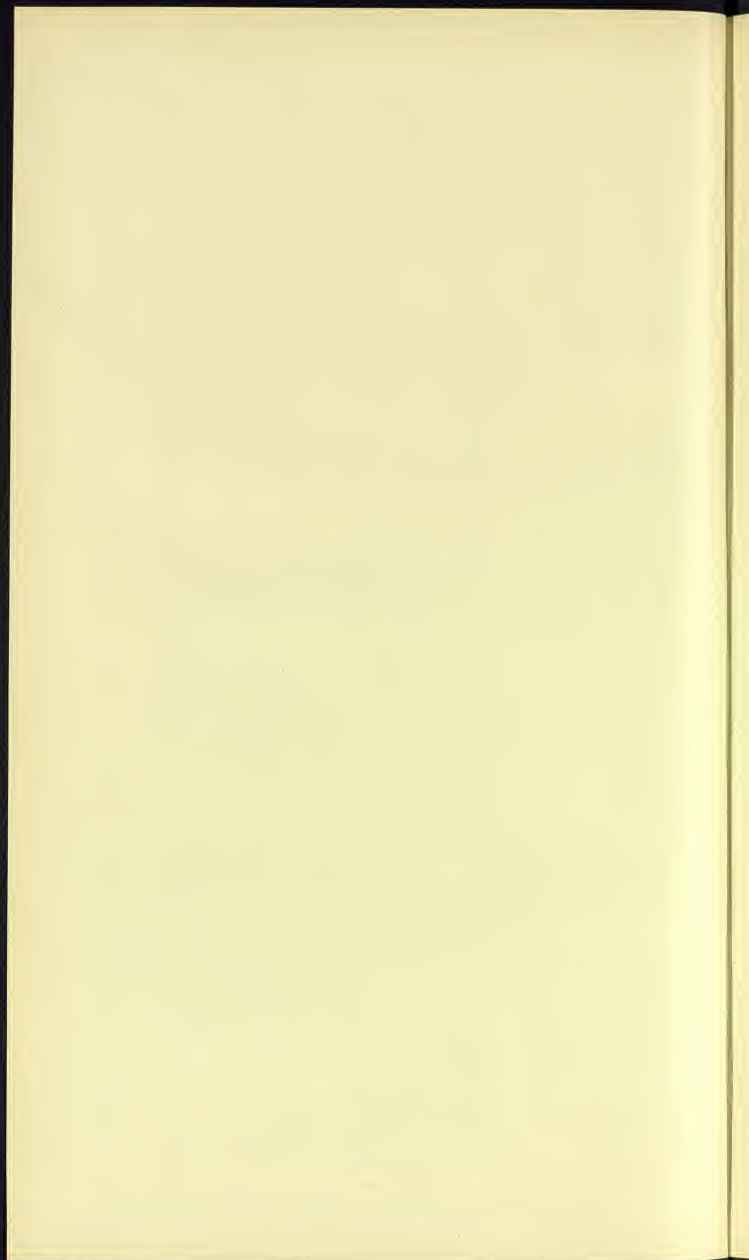


Figure 4.





DEPOSITION OF POISON GASES REQUIRED
TO GIVE A BLANKET DEPTH OF 20 FT. OVER
A FLAT SURFACE (IGNORING WIND & DIFFUSION
EFFECTS) WITH A LETHAL STRENGTH FOR
30 MINUTE EXPOSURE.

✈ INDICATES NUMBER
OF 5000 LB BOMBERS
REQUIRED

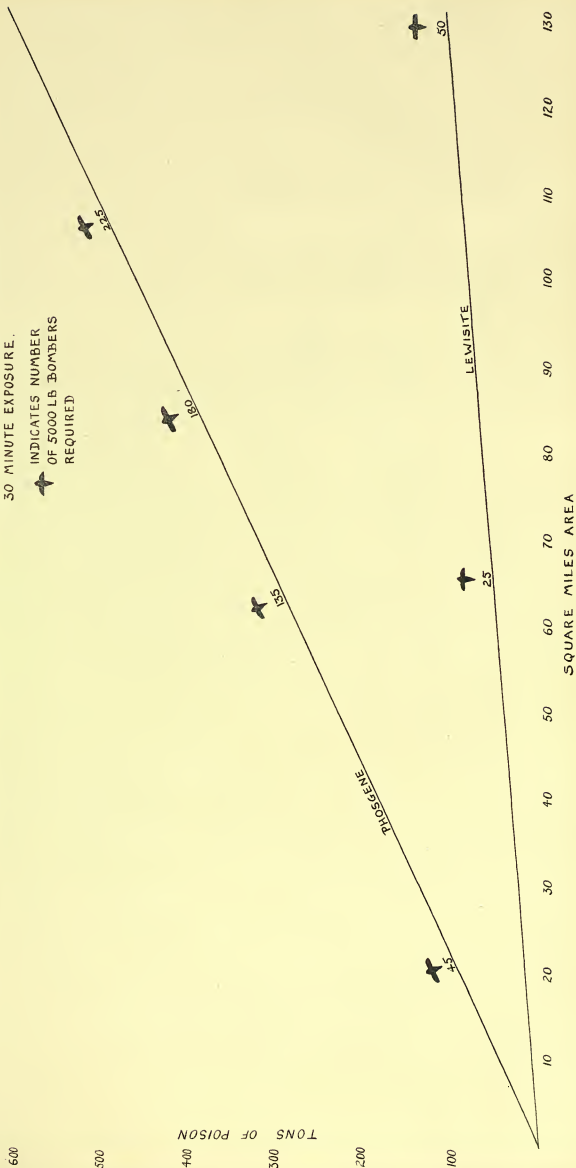


Figure 5.

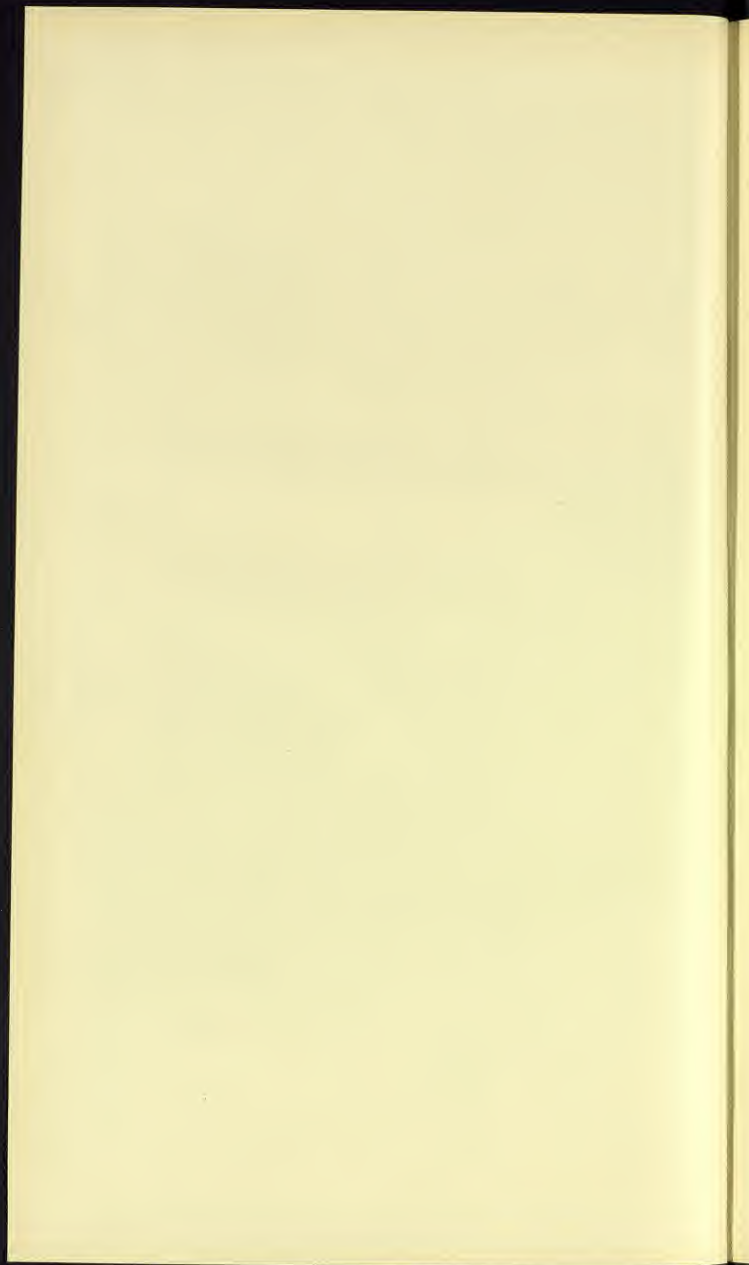
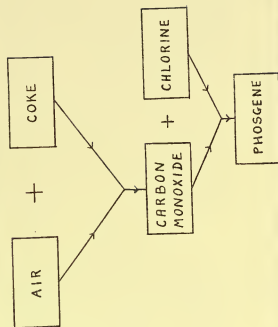


Figure 6A.

FLOW SHEET PG.3

PHOSGENE



FLOW SHEET P.G.2

CHLORINE

COMMON SALT
(SOLUTION IN WATER)

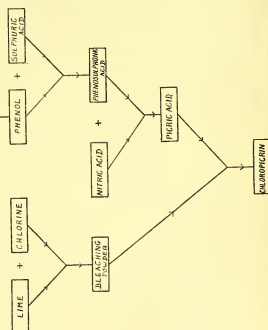
ELECTROLYSIS

CHLORINE

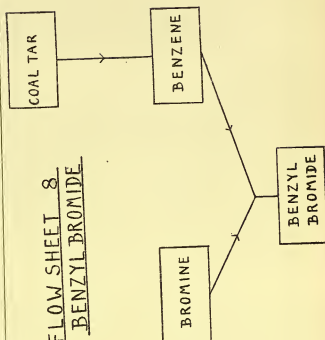
SEE DETAILED FLOW
SHEET IN ELECTROLYTIC
ALKALI SECTION.

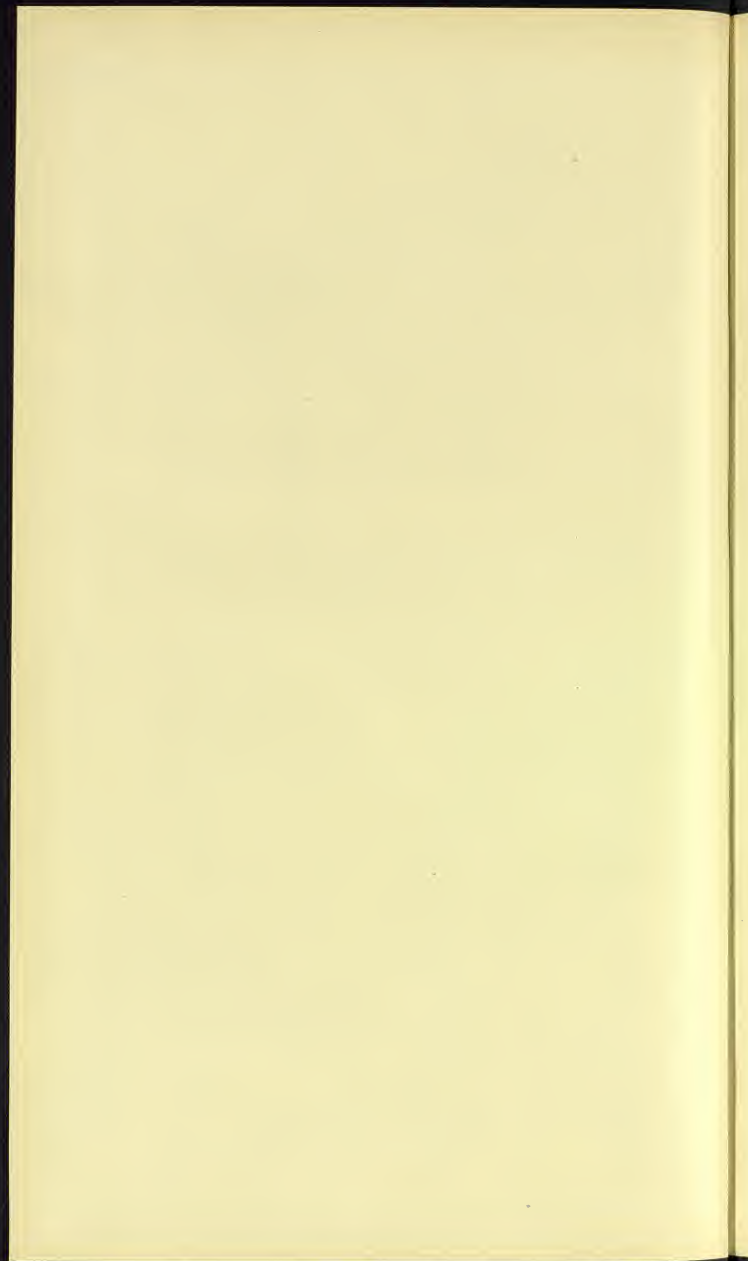
FLOW SHEET PG.4

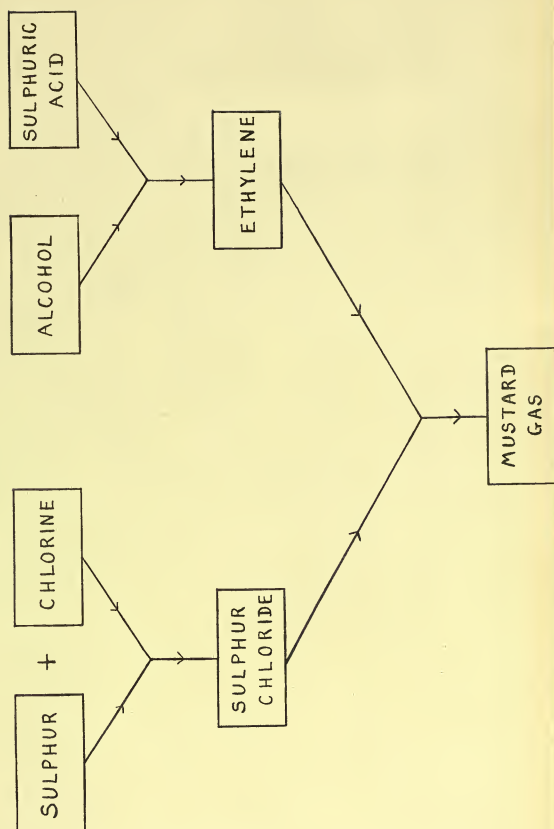
CHLOROPICRIN

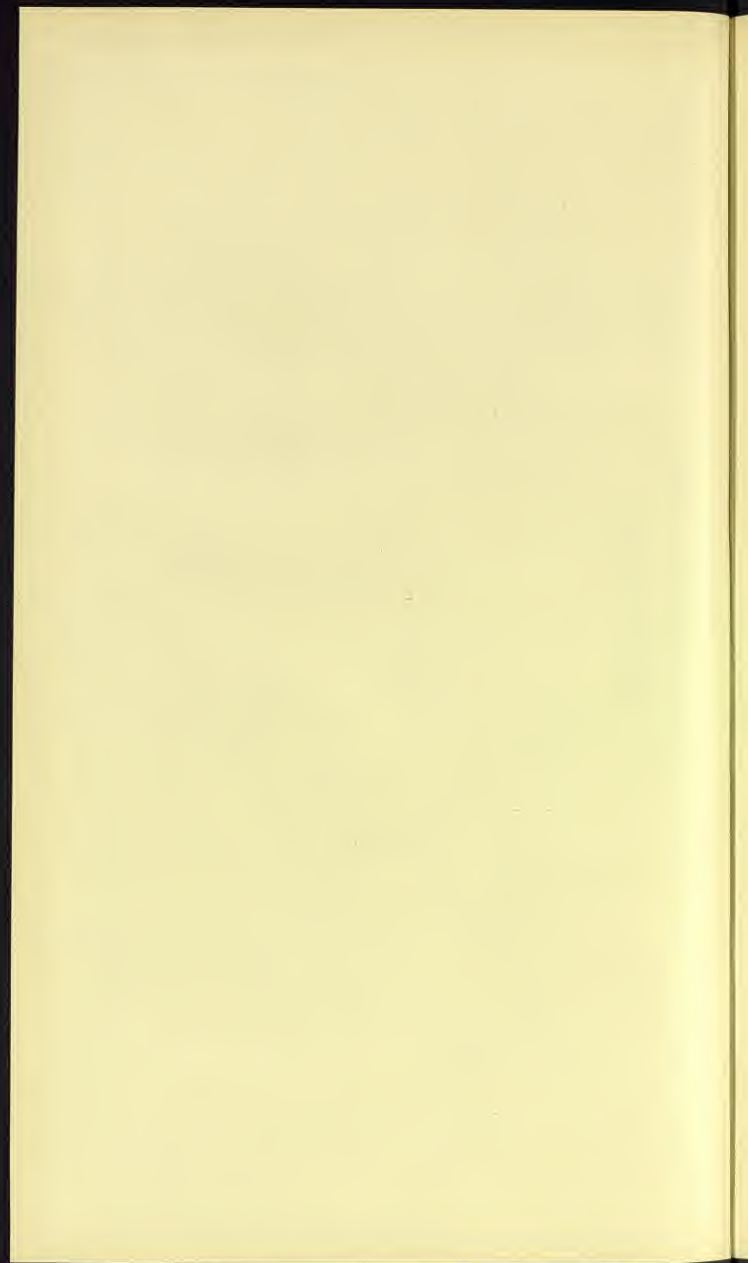


FLOW SHEET 8
BENZYL BROMIDE

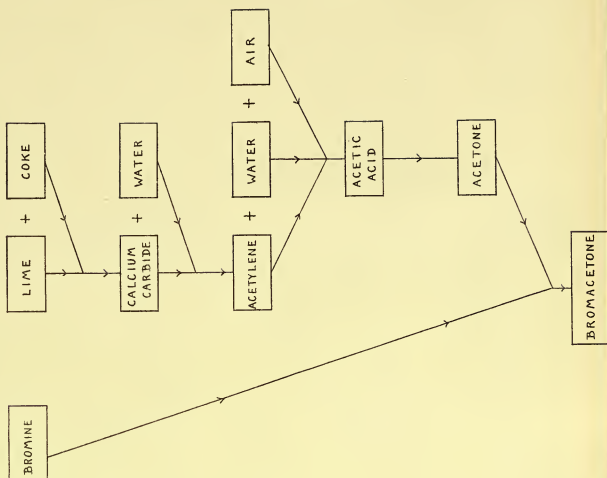




FLOW SHEET P.G. 5.MUSTARD GAS.



FLOW SHEET 9
BROMACETONE



FLOW SHEET PG.6
LEWISITE

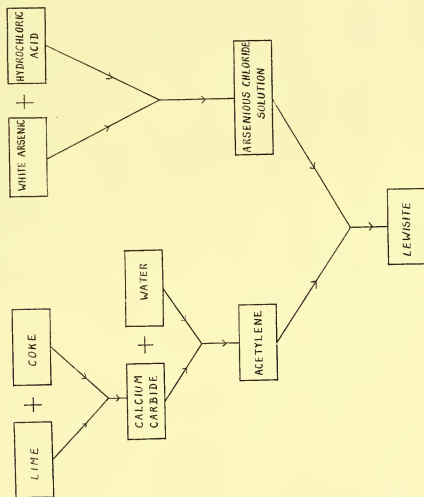


Figure 6C.

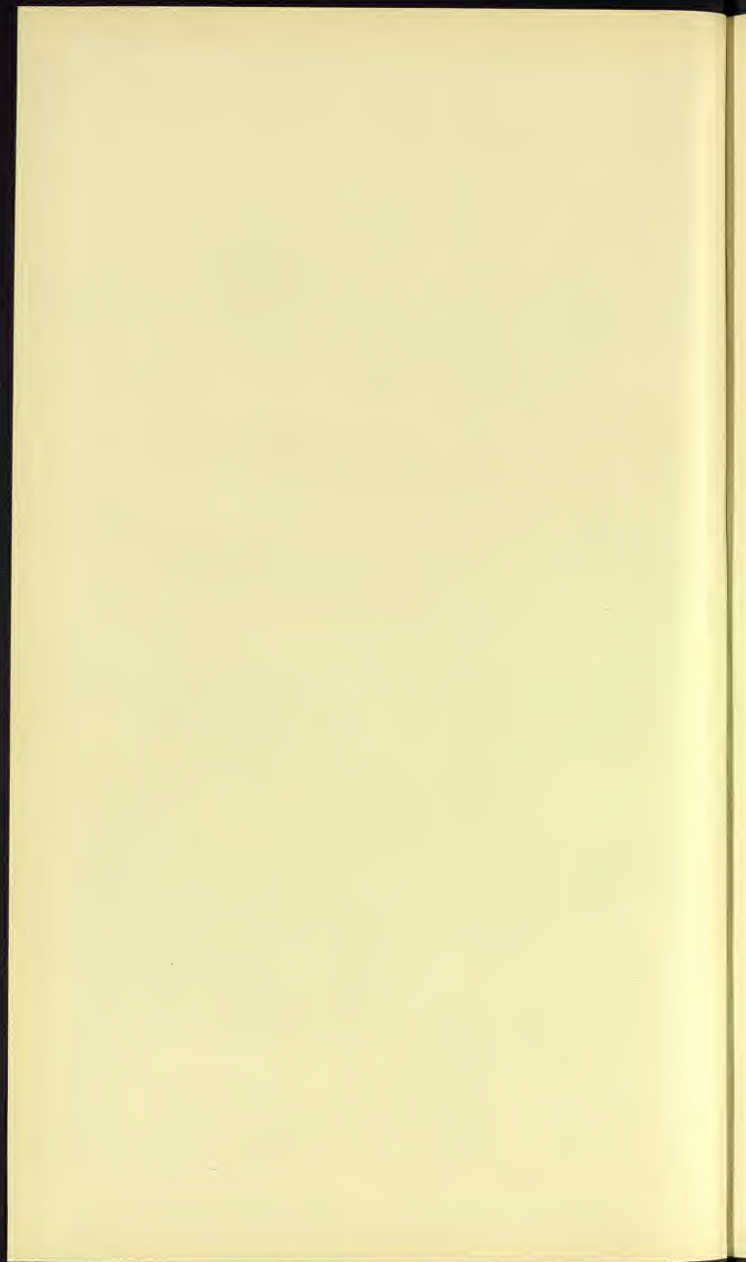
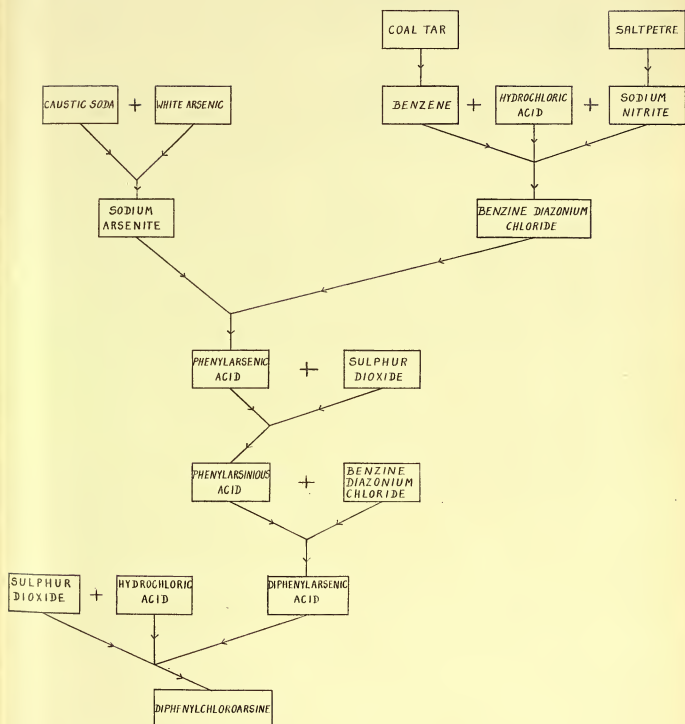
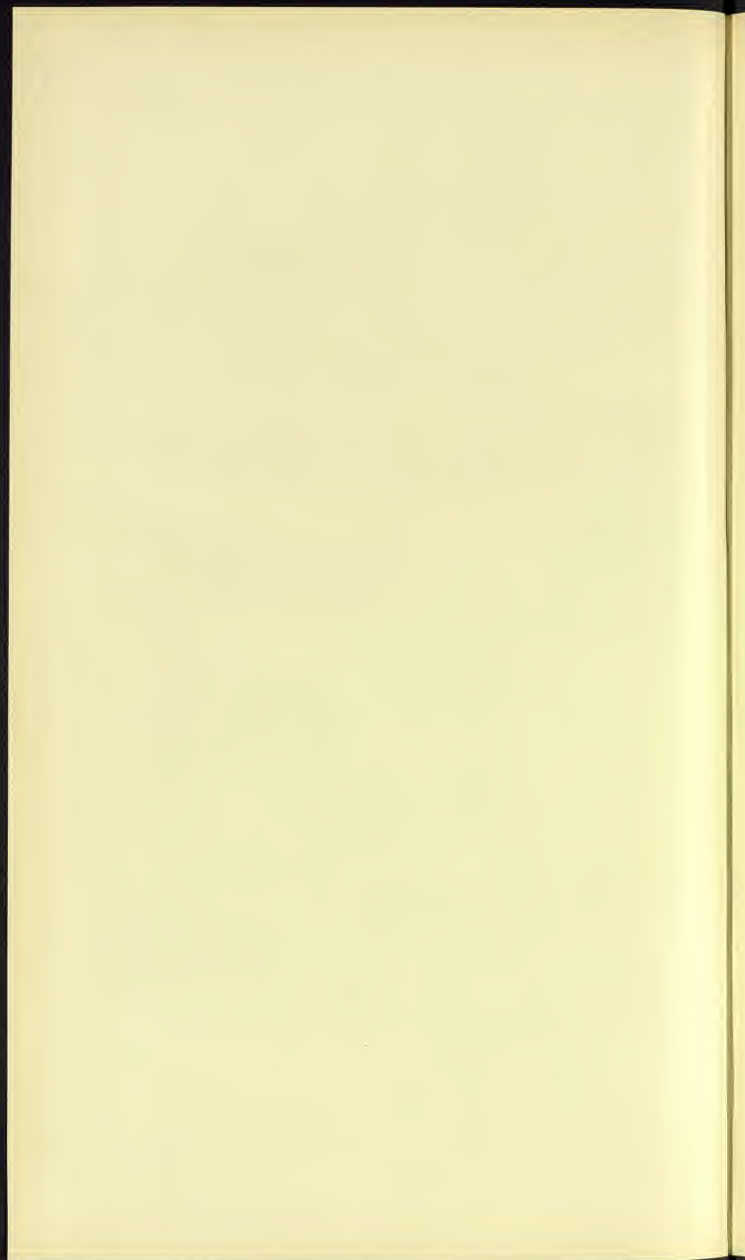


Figure 6D.

FLOW SHEET P.G. 7.

DIPHENYLCHLOROARSINE





FLOW SHEET FOR ELECTROLYTIC ALKALI FACTORY
EMBRACING CHLORINE PRODUCTION

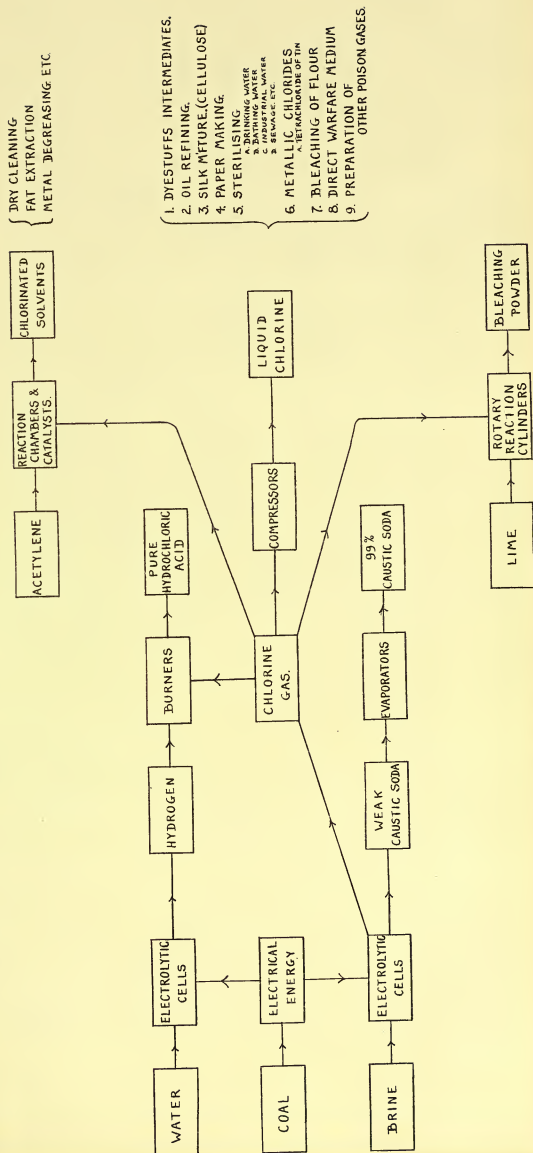


Figure 7.

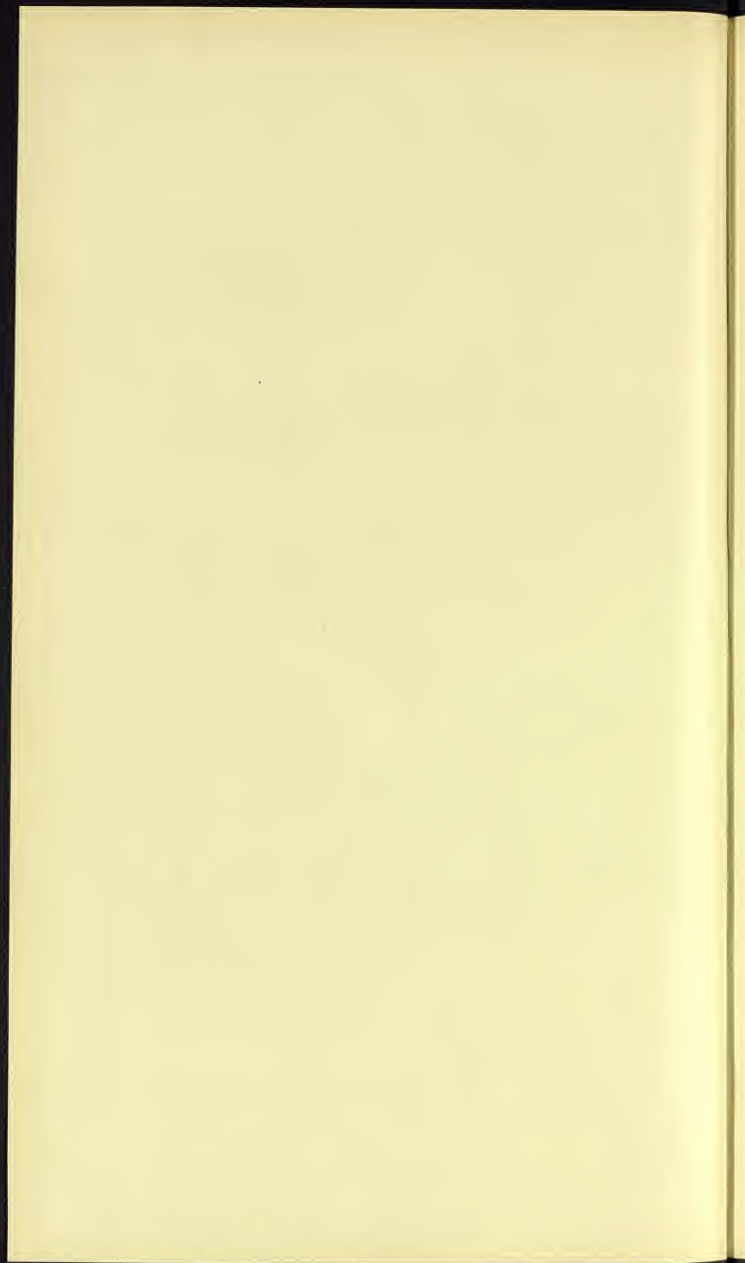
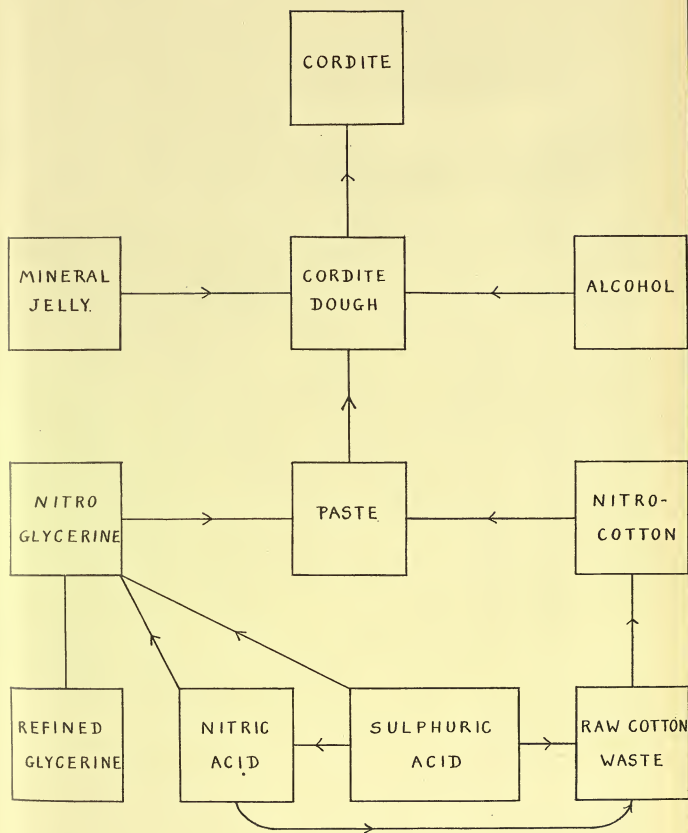


Figure 8.



SIMPLIFIED DIAGRAM
FOR CORDITE PRODUCTION

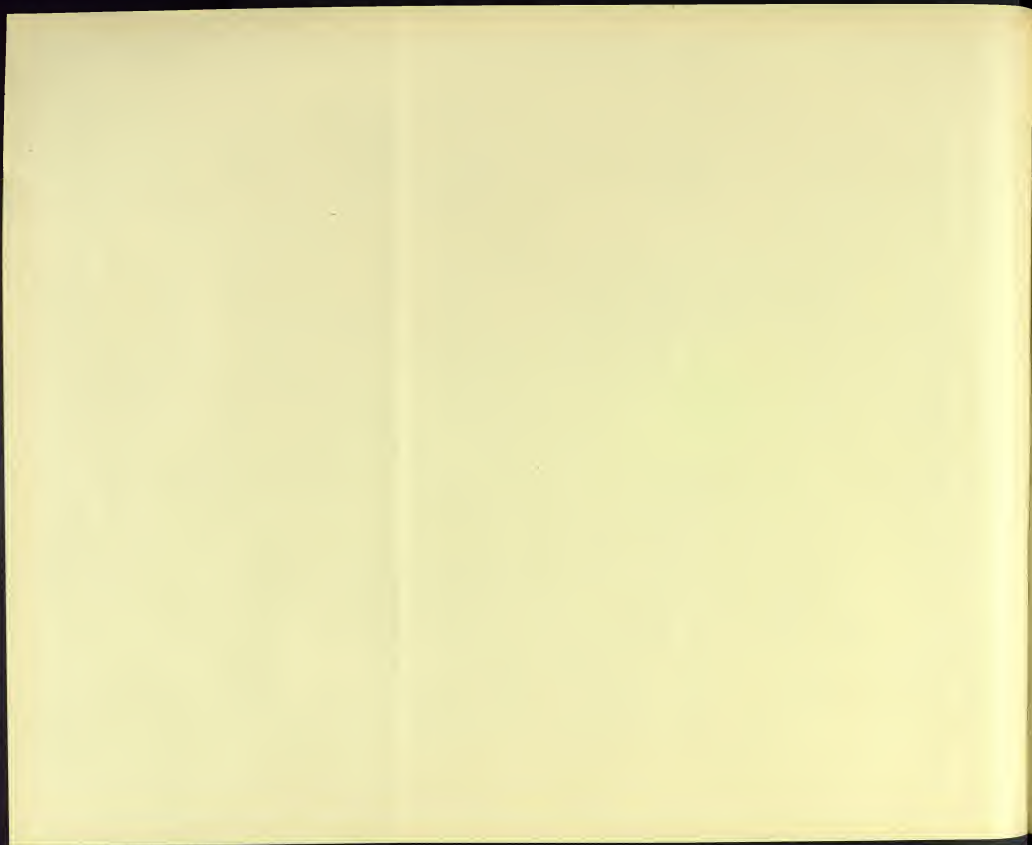


Figure 10.

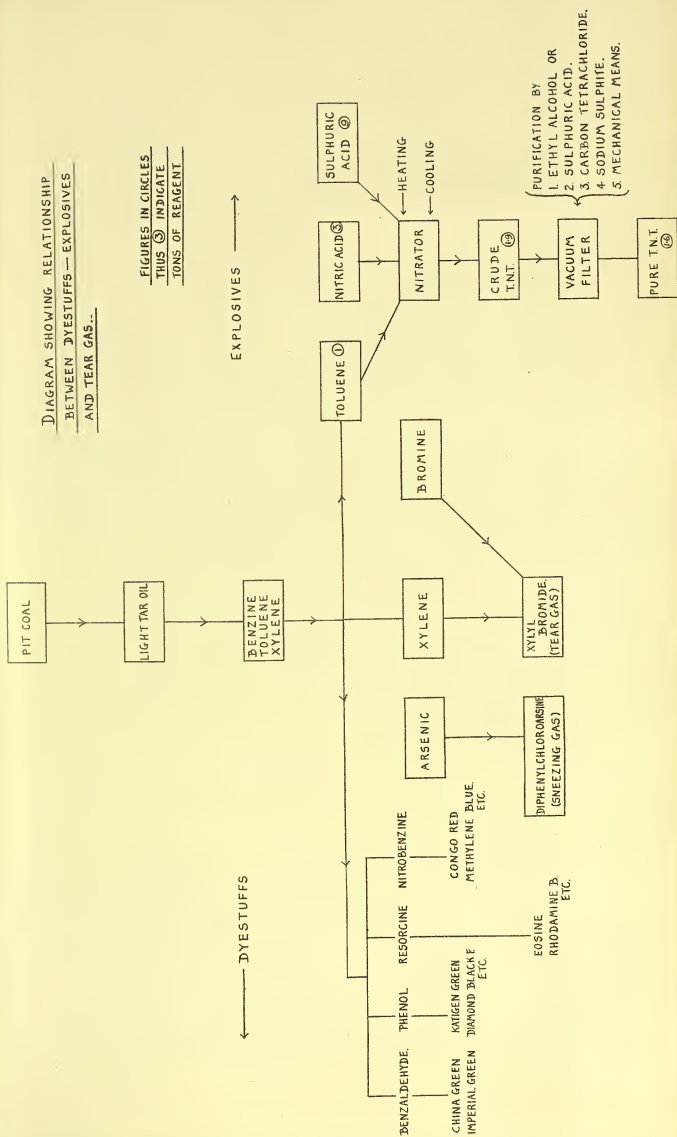


Figure II.

THE DEVELOPMENT OF THE HEAVY CHEMICAL INDUSTRY.

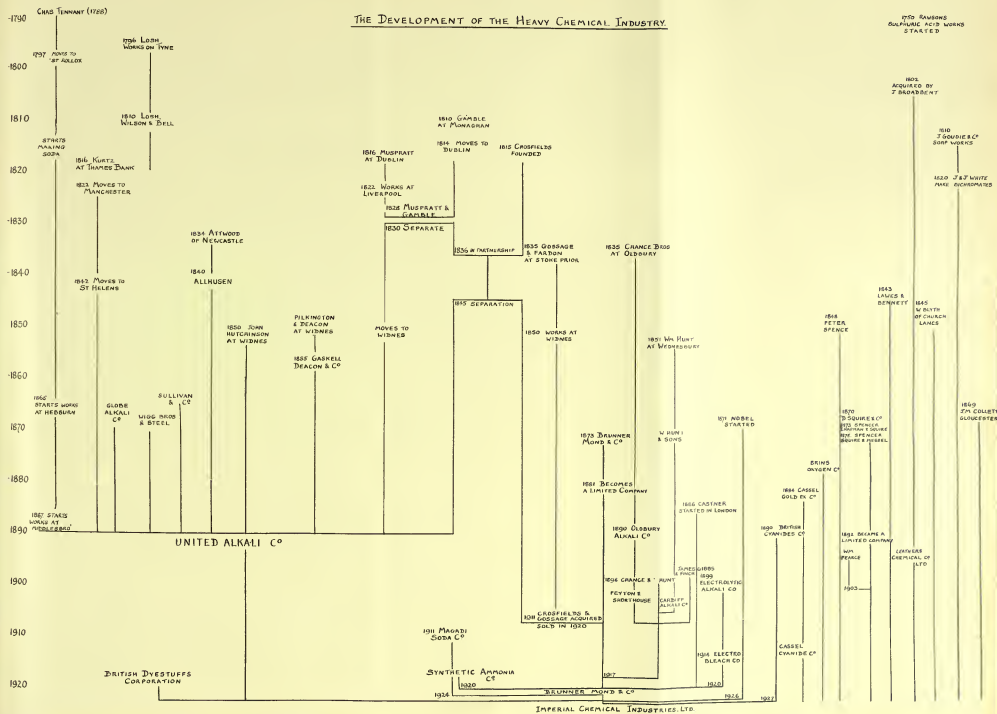
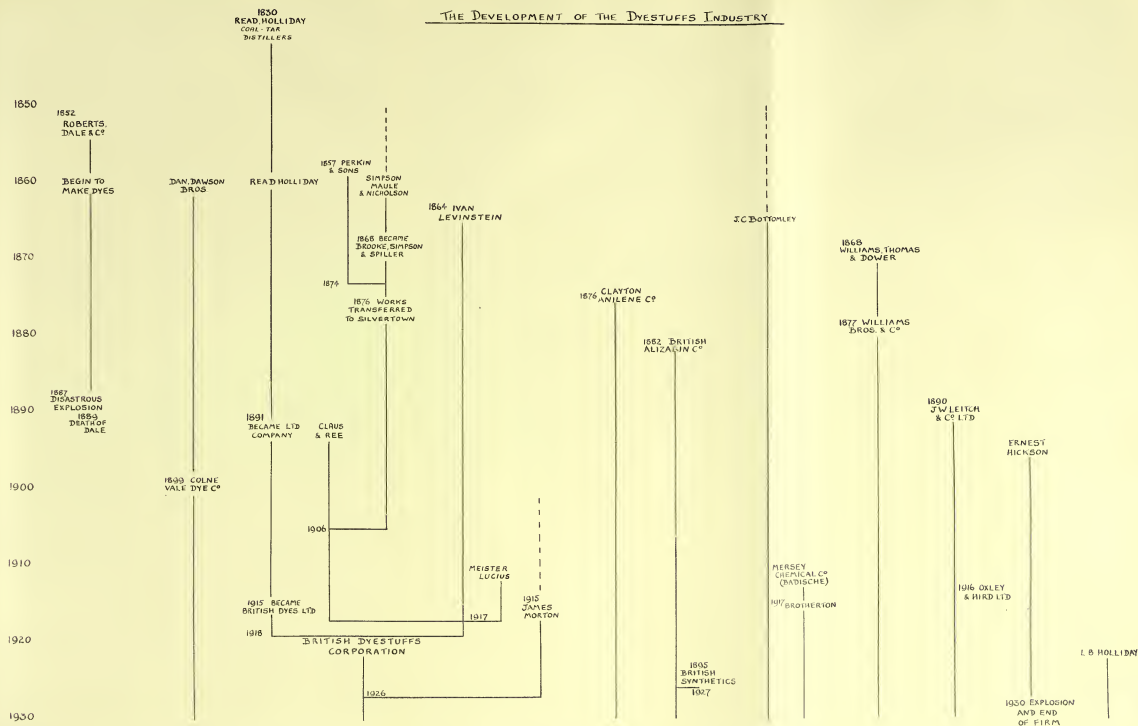
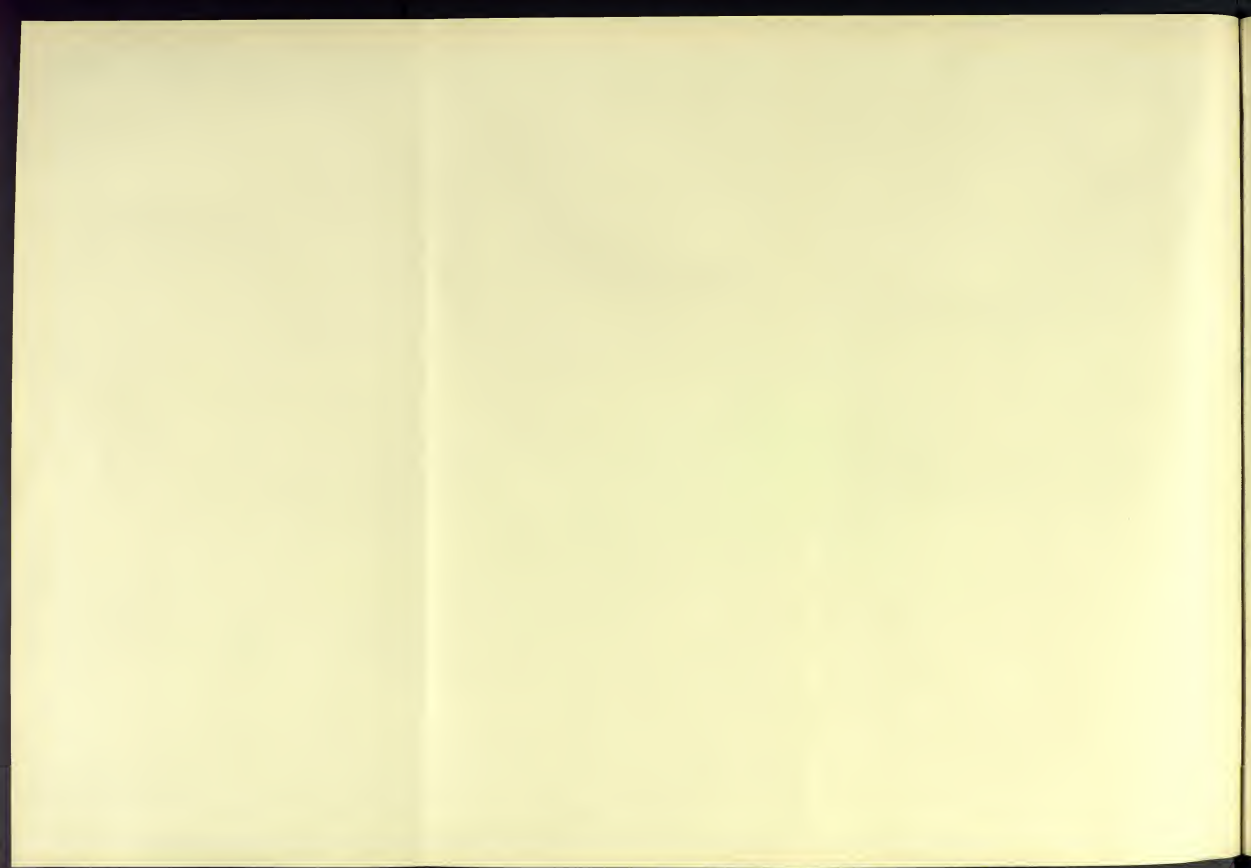




Figure 12.





ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

TAKEN BEFORE THE

9

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

NINTH DAY

THURSDAY, 10TH OCTOBER, 1935

WITNESSES—

Major General Sir STANLEY VON DONOP, K.C.B., K.C.M.G.

Major General Hon. Sir FRANCIS R. BINGHAM, K.C.B., K.C.M.G.

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

NINTH DAY

Thursday, 10th October, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.
Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Major-General Sir STANLEY VON DONOP, K.C.B., K.C.M.G., called and examined.

1216. *Chairman*: You are Major-General Sir Stanley von Donop?

Major-General Sir Stanley von Donop: Yes.

1217. *Chairman*: And you wish to come before us to give a statement in reference to the supply of armaments and various arms at the commencement of the War by private armament manufacturers?

Sir Stanley von Donop: Yes, that is so.

1218. *Chairman*: In order that the position you held at the time may be known, I have a statement here and perhaps you will correct it, if it is not correct. You have been Colonel Commandant of the Royal Artillery since 1925?

Sir Stanley von Donop: Yes.

1219. *Chairman*: You have held the appointments of Professor of Artillery to the Royal Military Academy, Woolwich; Superintendent of Experiments, Shoeburyness; Secretary of the Ordnance Committee; Chief Instructor of the School of Gunnery; Director of Artillery, War Office, 1911-13; Master-General of the Ordnance and 4th Military Member of the Army Council, 1913-16, Commander of the Humber Garrison, 1917-20?

Sir Stanley von Donop: Yes, that is correct, Sir.

1220. *Chairman*: You have supplied us with a statement of what you desire to say. Would you wish to read that to us now as your evidence or would you propose to make a statement independently?

Sir Stanley von Donop: I think it is better that I should read the statement that I made.

1221. *Chairman*: Yes, by all means.

Sir Stanley von Donop: I might preface that by saying that I knew nothing about the assembly of this Royal Commission until I saw a report in the paper of some evidence that had been given before it, and then I read that one of the witnesses had stated that the armament firms of England had absolutely failed in their work at the commencement of the War and during the early stages of the War. As I knew exactly myself what the armament firms had done and had not done during the early stages, I felt that it was only right that, as I and one or two others were the only people who knew the facts, I should bring before this Commission certain statements which would refute what I considered was rather a libel on the armament firms who had done such good work for us. That is the reason why I submitted my name for the purpose of giving evidence here.

1222. *Chairman*: I assume when you refer to a witness you are referring to what was said to us by Dr. Addison?

Sir Stanley von Donop: That is so.

1223. *Chairman*: Have you seen his evidence, or read it?

Sir Stanley von Donop: It was sent to me yesterday morning. I am afraid I cannot say I have read all of it. I read parts of it; but I should not say that I have waded through the whole of these long statements. I picked out some points and made notes on them, which I will give you when I have read my statement. Shall I read my statement?

1224. *Chairman*: Yes, if you please.

Sir Stanley von Donop (reading): I have not seen the Terms of Reference to the Royal Commission but I understand that evidence has been given stating that the large English armament firms failed to supply the guns, rifles and ammunition required during the early period of the Great War.

As I, in my capacity of Master General of the Ordnance, was responsible for placing the orders for this supply, and am well acquainted with the facts, I desire to testify to the real and strenuous endeavours made by all the recognised armament firms to meet these orders and to place on record the reasons why, notwithstanding their efforts, they were unable to deliver the goods by the dates promised when the contracts were placed.

I must commence by saying that previous to the War there were very few firms in England capable of manufacturing guns, rifles and ammunition, and these had received comparatively very small orders from the War Office, so that there had not been much encouragement for them to keep up the plant necessary for expansion in war time.

In the case of rifle manufacturers particularly we had the greatest difficulty in getting them sufficient orders from the War Office, India and the Dominions to keep them going at all.

1225. *Chairman*: Just one moment! When you say there that you had the greatest difficulty in getting them sufficient orders, you mean in peace time?

Sir Stanley von Donop: In peace time; oh! yes. As soon as war was declared the orders to provide the equipment necessary to keep the army in the field were at once placed. These orders were considerably increased directly Lord Kitchener had notified his scheme of increasing the army from 7 to 70 divisions. The various firms were called upon to increase their plant so that we could obtain the additional supplies in the same time if possible as those already ordered and promised.

As the campaign proceeded it was recognized that the number of rounds per gun found to be necessary exceeded by a large amount that previously considered to be adequate.

Other developments had already become apparent such as the great value of guns and howitzers of heavier natures than had been previously taken into the field and the necessity of high explosive shell for field guns. The provision of all these was at once taken up.

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Orders were given for as much as possible in this country, while Canada and America were called upon to assist.

In October, 1914, a Committee of the Cabinet was formed to assist the War Office in obtaining the necessary supplies. The Committee considered that the best plan was to call upon the English armament firms to produce a much larger quantity than that already arranged. Representatives of the firms came before the Committee, were given the necessary orders, were told that they might rely on having *carte blanche* for setting up plant and new buildings, that they had a free hand as regards cash, that the Government would indemnify them for all costs and give liberal profits. The firms undertook to try and accelerate the supply of field guns (this being taken by the Committee as an example)—but pointed out the difficulties with which they were hampered.

The same procedure was followed in the case of other accessories.

It should be mentioned that, from the earliest date, full permission was given to the firms to place sub-contracts with non-armament firms for components which they were capable of manufacturing. The orders (about October, 1914) placed in England involved the employment of some 2,500 to 3,000 firms in the production, either in the form of direct contractors or sub-contractors and many of these firms had had no previous experience in the particular work.

Now to turn to the reasons of inability to supply up to our needs and orders.

At the outset, never for one moment have I ever denied the fact that during the early days of the War, the expeditionary forces in France and other theatres of war were very short of the guns, machine guns and ammunition which experience in the first few weeks proved to be necessary.

The inability of the armament firms to fulfil their promises may be attributed briefly to:—

(1) Shortage of labour, especially skilled labour. It will be remembered that Lord Kitchener's demand for men for the Army was very urgent and met with a grand response with the result that the supply of men for manufacturing purposes was gradually and continually depleted.

(2) Delays in delivery of machinery, due firstly to the fact that the whole world was calling for machinery, especially from America, and secondly owing to delays in land and sea transport. Often it took 60 instead of 20 days for goods to come from America, while railways and docks were so congested that even transit from Liverpool to London sometimes occupied five weeks.

(3) The difficulty in provision of gauges. The craft of gauge making is limited and with many new firms making munitions, the demand for gauges was enormous. In some fuses nearly 200 gauges are required and in making, say, 10,000 fuses a week, some 1,300 sets would be required.

(4) Trades Unions restrictions such as, for instance:—

(a) The prohibition of unskilled or semi-skilled men doing the work of skilled men.

(b) The prohibition of women doing work wherever possible.

(c) The limitation of one man to one machine.

(d) The limitation of a man's output.

(e) The prohibition of union men working with non-union men or doing work which had been dealt with in any stage by non-union men.

Many employers stated that if the restrictions of the Associated Society of Engineers in particular, were removed, the output would at once have been increased by 25 per cent.

In February, 1915, additional powers under the Defence of the Realm Act in order to deal with these restrictions, strikes and other matters were put

forward at my request in a proposed Bill but they were struck out by the Government—why, it is not known—but they were all practically included in the Munitions Act of July, 1915—after the Ministry of Munitions had been formed. Notwithstanding this, I find a note, made at the time, that on 1st January, 1916, the Prime Minister and Mr. Lloyd George were still begging for restrictions to be removed.

Not wishing to make this statement unduly long I add the following brief remarks which seem to bear on the matter before the Commission:—

A. In peace time the manufacture of the time and percussion fuze used with the field guns was limited to 60,000 a year and yet I called upon the Ordnance Factories and the firms to produce 1,500,000 by April, 1915. I quote this as one example of the increase of plant and buildings required at short notice.

B. There was never any shortage of shell—any number of firms could make them but the supply of fuzes and propellants was much more difficult. Early in December, 1914, Sir George Gibb and Lord Pirrie told me they were sure they could find many firms capable of making time and percussion fuzes; but at the end of a week they told me they had found that they were wrong and Sir George Gibb placed the additional orders with the same original firms.

C. The Ordnance Factories and armament firms, notwithstanding their output in the first 10 months had increased upwards of 150-fold, were criticised for their delays; but it is only fair to them to say that with all the advantages held by the Ministry of Munitions it was 11 months before the first complete round manufactured to their orders was available.

D. When comparing prices, it is important to obtain full details. For example, in many cases, the War Office contract branch undertook to pay a higher price to cover the cost of the new buildings and plant required to execute the order. When this extra cost had been met the price was automatically reduced.

My recollection of the Lewis gun is that we paid about £140 a gun for the early deliveries and this was afterwards reduced to £80 when the cost of two large new shops and their equipment had been met; but it would be untrue to say that the actual contract price of the gun had been reduced.

In conclusion, I wish to inform the members of the Royal Commission that, in my opinion, the Empire owes a great debt of gratitude to the English armament firms as well as to the Ordnance Factories for all they did during the War to overcome the great difficulties experienced by them in meeting our demands. I was personally almost daily in touch with the late Sir Trevor Dawson, Mr. Saxton Noble and the heads of the other big firms and I am convinced that they did everything in their power to help in this great work. The inability to punctually meet our demands was entirely due to circumstances beyond their control.

If I may be permitted to offer any remarks on the desirability of the continuance of the principal armament firms, I would point out that we should fare very badly if we had not their resources in buildings, machinery and skilled labour to depend upon, but I should also like to emphasise the advantages we have always derived from their excellent design branches. The state factories were always hampered by not having any money allotted to them for experiments, whereas the private firms were not only ready to spend money on experiments but they maintained a designing staff paid at much higher rates than would ever be sanctioned by the Treasury.

Moreover the private manufacturer has his wits continually sharpened by competition. He is always up against other designs which may be better than his own and against cheaper forms of manufacture; cost of production does not influence the designer in

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state-run works to the same extent. In the matter of designs we obtained most valuable help from Armstrongs and Vickers before, and particularly during, the War. Practically all the new guns, howitzers and mountings which were introduced in the course of the War were to designs supplied by one firm or the other, while I can call to mind instances where, with the aid of their designing staff, we were able to overcome various difficulties which arose owing to the unprecedented wear and tear of guns and their appliances.

I mention some of the new patterns of ordnance to which I have referred: 3·7 inch Q.F. Howitzer; 60 pr. B.L. Gun, Mark II; 6-inch B.L. Howitzer; 6-inch B.L. Gun, Mark XIX; 8-inch B.L. Howitzer; 9·2-inch B.L. Howitzer; 12-inch B.L. Howitzer; 9·2-inch B.L. Gun, Mark XIV; 12-inch B.L. Gun; 14-inch B.L. Gun.

That concludes my statement. I picked out one or two points in Dr. Addison's evidence that I could speak to. Would you like me to take those now or wait till I have been asked any questions on them? 1226. *Chairman*: Perhaps you had better indicate what it is.

Sir Stanley von Donop: As I say, I have had only a very short time to go through them, but he states that early in 1915 our methods of giving orders to expand the armament firms showed difficulties, and so they had to start national factories. He says that was in May, 1915. I was at a big meeting on the 23rd July, 1915, at the Ministry of Munitions and a large order for guns and carriages had come in and the matter was discussed as to how they should be supplied. This Committee of the Ministry of Munitions unanimously followed the same procedure that we had followed, although Dr. Addison says they had to start national factories. They did afterwards, but they confirmed entirely what we had said.

1227. *Sir Thomas Allen*: At that point.

Sir Stanley von Donop: Yes, in July, 1915, because when I went back to Lord Kitchener after the meeting he asked what had happened, and when I told him he burst out laughing and said "This is what you have been abused for by the Cabinet every single day since the commencement of the War for doing and now they have done the same thing."

1228. *Sir Thomas Allen*: That was the opinion of the Committee at that particular moment, with their knowledge and experience?

Sir Stanley von Donop: I do not think they had any at that moment. They were all new. They did not know a gun from a howitzer.

1229. *Sir Thomas Allen*: They had to rely on the old system for the time being, until they had proved something better?

Sir Stanley von Donop: I suppose so, until they had developed something better. Then Dr. Addison said the deliveries from national factories began in August, 1915. The first completed round was sent in in April, 1916. They produced what Mr. Lloyd George called "a lot of empty mugs." He was alluding to shells. He merely meant they were empty shells. They had no components. And an empty shell was no use. When the Ministry was first formed they asked me what we wanted particularly, and I gave them a list in the order of precedence of difficulty in getting them. At the end of a month they had not ordered a single thing except the simple shell that anybody could make, and that was the cause of their being unable to produce a complete round for 11 months after the order had been given.

Then the Ministry claimed a reduction of prices. I have already mentioned the facts about the prices. You must remember that in October, 1914, there was a Cabinet meeting at the War Office when the representatives of the firms were brought there and they were given *carte blanche* as to money, as to

anything they liked to spend. That helped them a little bit in their arguments with our Contracts Branch, when they were dealing with prices.

Then Dr. Addison said that Woolwich lived up to promises and the firms did not. Woolwich had not the same opportunities of expansion. The firms could not foresee the difficulties that I have mentioned in my memorandum about the supply of machinery and transport, and I may say the firms did not promise that Cabinet Committee to produce that large number of guns. They said they would do their very best to produce it. Mr. Saxton Noble came to me next morning and said, "We have accepted the wish of the Cabinet Committee to increase the number of guns; that we have promised and we will do our best, but mind you, we are not going to be pilloried because we have not done it, because it is outside our actual work."

1230. *Chairman*: Dr. Addison spoke about the contracts made and about deliveries not being made in accordance with contract time. Were there in fact any written contracts entered into or was it merely an order given and an indication that the firm would do its best?

Sir Stanley von Donop: There were actually written contracts which stipulated the time, based on what we hoped they would be able to do, but I admit none of them were able to keep up to their promise, because of these difficulties I have mentioned. Nobody realised the difficulties.

1231. *Chairman*: There was a fixed time?

Sir Stanley von Donop: Yes, in nearly all the contracts there was a fixed time. I noticed a member of your Commission talked about not being able to get the soldiers to decide between shrapnel and high explosive. I do not know whether you want me to enter upon that. I do not know whether it concerns the Commission or not, but I have a very good answer.

1232. *Professor Gutteridge*: I should like to hear that.

Sir Stanley von Donop: I will try and put it as shortly as I can. The accusation was that we would not admit the necessity of high explosive shrapnel for field guns and that Lord Kitchener was prejudiced against it. I can tell you at once that Lord Kitchener took the keenest interest in what we were doing, but I never heard him express an opinion on the subject. He did not mention it in any way. But before the War, when the 18-pounder equipment was being made, the question of high explosive shells for the destruction of shielded guns was very closely discussed. At the moment I was Superintendent of Experiments carrying out trials and we were going to carry out a trial against shielded guns with high explosive shell and shrapnel. The Ordnance factories could not produce a fuse which was safe for our high explosive shell, and so the work was delayed. But one day when I was carrying out experiments against a screen I missed the screen and hit the shield with the shrapnel and the whole of the dummies and everything else behind the shield were smashed to smithereens. I wrote up to the Ordnance Committee stating that I had not been able to carry out the whole of the experiment but I had carried out half of it, and they replied that shrapnel was good enough for the gun and they very carefully went into the question of whether field guns were to be supplied with high explosive as well as shrapnel, and the General Staff, and everybody connected with the Ordnance Committee, and others, came to the unanimous opinion that field guns should not be provided with high explosive but only with shrapnel.

1233. *Sir Philip Gibbs*: I think there was a mistake.

Sir Stanley von Donop: A mistake in what they said?

1234. *Sir Philip Gibbs*: Yes.

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Sir Stanley von Donop: Very likely. I do not want it to be used in any way to pillory, but Sir Douglas Haig was Director of Military Training. His were the words I have quoted, that it was absolutely unnecessary to have high explosive for the guns. I only wish to say that it was considered very closely before the War. It was not overlooked. Directly the War started—I am afraid I am going to be a little egotistical; I do not want to be, but I cannot help it—I did, on my own initiative, write to the Commander of the Artillery of our Expeditionary Force and say "It seems to me from what I hear that you are getting a lot of damage from the German high explosive field gun shells. Would you like me to provide some high explosive shells for your field guns?" He wrote back "As an advance opinion I should say that if you really have safe explosives for field guns, by all means proceed to manufacture. Our gunners would certainly like to be in possession of it, and I suppose money is but little object, and it will take a considerable time to supply, will it not?" Next he sent me a letter on the 7th September, 1914—"I got the ear of the staff concerning the high explosive for field artillery and they do not seem to think that we have quite enough data to go upon. I have not got the Chief's ear, but Murray"—that is, the Chief of Staff—"is in favour of you at home getting on with the matter, as in all probability it will be welcomed in the long run, and I certainly think that our people (gunners) will be happier when they are in possession of it. The moral effect of the stuff is no doubt high, though the actual effect does not seem to come up to statements."

1235. *Professor Gutteridge:* High explosives were very local in their effect at that time?

Sir Stanley von Donop: Yes, and also it was found that high explosive shell is very much better with a gun of a larger nature rather than of a smaller nature, such as the 18-pounder. We went on with it afterwards, but it caused a certain amount of trouble to start with, because I could not find out whether they wanted it or not. If they wanted it we had to start manufacturing on a large scale and the question was whether if we manufactured on a large scale it would hamper the supply of shrapnel, which was very important. We had to place additional orders, and eventually we supplied the high explosive. I think that is everything that I have to tell you.

1236. *Chairman:* There is a passage in Lord Cecil's evidence that I will read to you and I will ask you what you have to say about that, because I do not quite understand what he says. It is on page 13 of Lord Cecil's evidence, in the first column. He says:

"The Government found that they required immensely more armaments than they had anticipated—than anybody had anticipated, when they saw the kind of numbers that were engaged in the War—and the official provision for it was, of course, quite insufficient. They then turned, in the first instance, to the various armaments manufacturers, and gave orders for various things. I am speaking out of my own recollection, which may be inaccurate. They found"—

that is, the Government—

"that in point of fact the armaments manufacturers combined to pool their own resources—that they were unable to act independently—so that in fact the Government only got one additional source and that at a very considerable price."

From your experience, what do you say with reference to that statement that they had pooled their resources and acted as one?

Sir Stanley von Donop: I do not think there is any truth in the matter. I was always giving orders separately to each of the firms and I can only say that we gave the firms permission to expand to any extent they liked and to place any number of sub-contracts—that is to say, to pass on

to the non-armament firms things that they were capable of making, so as to relieve them from making those components. The result was that we had between 2,500 and 3,000 other firms combining to help with various components, but they were chiefly farmed out by the armament firms. We gave an order, for instance, to the Elswick Ordnance Company for gun ammunition and so on, with full permission to sub-contract, and they distributed a lot of the components to those small firms.

1237. *Chairman:* Yes, but as far as you were concerned, had you any evidence that these firms were not acting independently?

Sir Stanley von Donop: No; none at all.

1238. *Chairman:* Or that they had pooled their resources in order to raise prices?

Sir Stanley von Donop: Oh! no; not in the very least. I had a very good financial expert on my staff and the only complaint I ever had from firms was that this man was trying to skin them down to the very lowest prices. Of course I was a little bit hampered in a way by Mr. Lloyd George. There was a Cabinet meeting—well, it was not a Cabinet meeting, I suppose, because I was there—but a special meeting of a number of Cabinet Ministers. We met in Lord Kitchener's room, and these firms were represented and were given *carte blanche* to do anything they liked and were told that they would not be hampered for money or anything like that. That tied our hands a little bit when we were arranging terms; but I have not a word to say against the way the firms met us.

1239. *Chairman:* Would you mind turning to page 118 of the Appendix to Dr. Addison's evidence? Dr. Addison made a great point of this, I think. He said that it was essential that in peacetime some organisation should be set up which would be capable, in the event of an emergency, of utilising every available machine and every available man to the best advantage. He said that that organisation should be set up in peacetime, to render that possible. Do you agree with that as a matter of precaution, of wise organisation?

Sir Stanley von Donop: I do not think it can fail to help matters.

1240. *Chairman:* If you turn to page 118 you will find, under paragraph 72, in the left-hand column, the various reasons that Dr. Addison gives for that general conclusion of his. I should like to go through them with you to see how far you agree with them, or, if you do not agree with them, why you do not. What he says is this:

"There should, I suggest, be a single supply and manufacturing department for all war departments, the following being some of the more prominent considerations:—(1) There were numerous instances of the difficulties, and sometimes waste, which arose out of different service departments seeking to obtain the same materials as well as machinery at the same time. Because of those difficulties the supply of materials and machinery became progressively concentrated in the Ministry of Munitions. The advantages of unified responsibility are manifest, where imported supplies are concerned."

Do you agree with that?

Sir Stanley von Donop: I quite agree that everything that is done to avoid overlapping and competing against each other is a good thing. I was in trouble once because a lot of the artificers at one of the famous firms in—I forget whether it was Birmingham or Sheffield—were bribed to go up to the torpedo factory at Greenock. I went to Lord Kitchener and said: "They have been given double pay to go there." He said: "Give them treble pay to stay here." Anything to prevent competition between firms is a good thing.

1241. *Secretary:* It may be within Sir Stanley's knowledge that since that time there has been set up a Contracts Co-ordinating Committee, which co-ordinates Departmental demands for supplies.

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Sir Stanley von Donop: Then that meets the case. I have been out of it for 15 years, so I am not in touch with what is going on.

1242. Chairman: Will you turn to the top of the next column?

"(2) The disorder and possible waste and loss to the efficiency of supply are equally cogent in the case of manufacture either in national establishments or by private firms. The overlapping of orders and divided responsibility in the case of aircraft supplies is a striking example."

That is really only a continuation of the same argument?

Sir Stanley von Donop: Yes.

1243. Chairman:

"(3) Similarly great economies as well as improvements in manufacturing efficiency are obtainable through a costings system under unified and experienced direction. The difficulties that arose between the Ministry of Munitions and the Admiralty over cordite prices, of which details can be supplied if desired, furnish an illustration of the losses that may arise from divided responsibility."

Do you agree with that?

Sir Stanley von Donop: I have no doubt that a combine working together could agree to keep the prices down and not to be competing, as it were, against each other.

1244. Chairman:

"(4) The processes of transport, assembly, inspection and filling are those in which unless there is unity of direction there must be unnecessary delays and disorder."

Sir Stanley von Donop: That is a platitude, I think.

1245. Chairman:

"(5) The work of design and experimentation is inseparably associated with that of manufacture and supply, and, as the evidence has shown, serious difficulties and delays occurred during the first year of the work of the Ministry of Munitions, because design had not been associated at the start. The records of the Inventions Department of the Ministry (which can be supplied if desired) are a good example of how an alert central department can be directed to make use of and develop not only the suggestions of its own experts but those which come from outside. The cases in which this department assisted to bring up to a workable form suggestions often of quite humble people were very numerous. There were some thousands of cases great and small. It is certain that had it not been for these arrangements very many useful ideas would never have been made use of. The case of tanks referred to by Sir Eustace D'Eyncourt—who was himself the chief designer in the Admiralty—is an example of how a central department (the Ministry of Munitions was responsible for tank supply) was able to make use of and provide facilities for the development and perfection of outside suggestions. The Stokes mortar is another example."

Do you agree with that?

Sir Stanley von Donop: It is a very nice pat on his own back for what they did at the Ministry of Munitions, but I am not prepared to say that the War Office were not equally capable of doing what they did in the way of inventions. For instance, we were working on the tank as well, and I know that when we came back from the first trial of the tank down at Hatfield, Lord Kitchener said to me: "Would you like to be responsible for the manufacture of those tanks or would you like the Ministry of Munitions to do it?" I said: "I should let the Ministry of Munitions do it. They have been working at it and I do not want to interfere with them in any way. But we have got the matter in hand ourselves as well." I do not think there is very much in what he says, because it only means, putting it rather bluntly, that their

design branch, or their experimental branch, was better than ours, or that their invention branch was better than ours.

1246. Sir Philip Gibbs: I think his point was that by having an Inventions Board you would get design just as well under a national system, as you would under private manufacture. It not that rather the point?

Sir Stanley von Donop: Yes; but I had one department under me at the War Office which dealt with inventions, and people came there with inventions—and very good ones some of them were—and we had to differentiate between them.

1247. Sir Philip Gibbs: You did not rely entirely on the designs of private firms.

Sir Stanley von Donop: Oh! no. Lots of inventors came to this Board. With regard to this particular tank: It was a curious case. Sir Maurice Hankey telephoned me from his office one day to say a man was there with a wonderful invention and would I let him come and show it to me. He told me roughly what it was, and I said "The Admiralty are dealing with that at the moment"—Mr. Winston Churchill, I think it was, at that time had taken it up—and it is no use everybody putting their fingers into it". I said, "Can you arrange with the Admiralty to see it, and I will go over there?" I went over there in the afternoon; the man had arrived and he had produced a little model of the tank which we had already got—it was a case of two great minds thinking alike—and the only means we had of saving ourselves—we had not made the tank—was by at once sending for the designs of the tank at the Admiralty and producing them to this man to convince him that we had not stolen his design.

1248. Chairman: What Dr. Addison was emphasising was, that you would not be, in a case of emergency, running about between the various departments to see which should take up a particular thing, but that there should be a central department working for all branches of armament work?

Sir Stanley von Donop: We had that. I had a department under me dealing with that at the War Office. They dealt with all inventions that came in.

1249. Professor Gutteridge: But the Admiralty had a separate department.

Sir Stanley von Donop: The Admiralty had a separate department. That was for the sea. We did not clash with them. One was for the land and the other for the sea.

1250. Professor Gutteridge: The Air people had their own?

Sir Stanley von Donop: The Air people had their own.

1251. Chairman: If we may finish what I was asking you about, will you refer again to what Dr. Addison said?

"(6) There is a final and most important reason for the existence of such central department as is here suggested, namely, that only by such an agency would it be possible to mobilise and secure the rapid utilisation of appropriate private manufacturing capacities to provide expansion in the case of war. This consideration calls for suggestions as to how such a department would operate."

You see, what Dr. Addison visualises is a central department which should be able, as he says, to mobilise and secure the rapid utilisation of appropriate private manufacturing capacities in case of emergency. If something of that kind were set up in peace time it would avoid a great many of the difficulties and troubles that were experienced at the beginning of the Great War, would it not?

Sir Stanley von Donop: It would to a large extent; but the great difficulty was to get the machinery. To follow that out to the end you would have to lay-up and store machinery, you would have to have it installed ready for the purpose. There

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was one firm making "Nota Bene" pens or something of that sort; we turned them all on to it; we had between 2,500 and 3,000 other firms all working very shortly after the commencement of the War, firms that had had nothing whatever to do with munitions. To-day what you suggest, Sir, would mean that some particular place should have all the machinery necessary for carrying out this work of making armaments.

1252. *Chairman*: You could have an organisation with a register of all possible available factories?

Sir Stanley von Donop: Yes.

1253. *Chairman*: You could have that all ready?

Sir Stanley von Donop: Yes. There is no reason why you should not have a census.

1254. *Chairman*: You had not got it in the last War?

Sir Stanley von Donop: No.

1255. *Chairman*: Because you had no organisation that was able to do that particular work?

Sir Stanley von Donop: No. The only thing is, that without organisation, in a very short time we had picked up between 2,500 and 3,000 firms to help the armament firms in supplying components.

1256. *Chairman*: When you speak of "a very short time", it was several months?

Sir Stanley von Donop: I think it was in October. Of course, in the first months of the War nobody realised the enormous demands we should be called upon to meet. While you are talking about the supply it would be just as well for me to say that not only all those nations engaged in the War found that they were expending very much more ammunition per gun or per division, or whatever it was, than had been expected—and most of the nations had only to increase the number per division to meet the demand—but we also had to meet that extraordinary increase that was required when Lord Kitchener increased our Army from seven to seventy divisions. And that is what I may say almost broke us.

1257. *Professor Gutteridge*: The sudden increase in the armed forces?

Sir Stanley von Donop: The sudden increase. Not so much the gun increase, but the divisions themselves increased tenfold. That was a great burden on our shoulders.

1258. *Professor Gutteridge*: The previous estimates of ammunition expenditure were based on the Russo-Japanese War, were they not?

Sir Stanley von Donop: I do not think so. The history of it is that a certain amount was laid down and Sir Henry Brackenbury, when Director-General of Ordnance, insisted on a very large increase in the reserve, and the Prime Minister at the time said he was not able to do it without a Special Committee on the subject. A Special Committee dealt with it. I cannot quite remember the figures; twelve million pounds came into it, but the Committee said he had asked for too much, eleven and a half million would do it.

1259. *Professor Gutteridge*: At any rate, the calculation was made according to the data then available?

Sir Stanley von Donop: Yes.

1260. *Mr. Spender*: Had the French at the time any arrangements for expanding?

Sir Stanley von Donop: I could not tell you. I know they took on a lot of extra firms like we did, because a certain gentleman came over and told me about it, and I said "All right!" Then he went to Lord Kitchener about it, and Lord Kitchener referred to me, and I said we had had done the same. Then I had a letter from Buckingham Palace saying that His Majesty had heard what splendid work had been done in France in expanding to civilian firms. Then I thought it was time to turn, and I wrote a letter showing that we had taken on something between 2,500 and 3,000 firms to help

in expanding the supply of ammunition. Finally, the gentleman who had come over here to give us that information wrote me an ample apology and said he was very sorry indeed he had raised the question.

1261. *Sir Kenneth Lee*: I am not sure whether you answered one of the questions which the Chairman put to you with full knowledge of what Dr. Addison had in mind. In paragraph 72 of Dr. Addison's memorandum he says: "There should, I suggest, be a single supply and manufacturing department for all war departments."

Sir Stanley von Donop: Does that mean that you are to limit it to one (we will call it) ordnance factory and have no private firms?

Chairman: I think so.

1262. *Sir Kenneth Lee*: Dr. Addison's idea, I believe, was that there should be a single department controlling all war supplies.

Sir Stanley von Donop: A department controlling; not manufacturing?

1263. *Sir Kenneth Lee*: Controlling.

Sir Stanley von Donop: In other words, that the Admiralty, the Air Force and the Army should work under one control?

Sir Kenneth Lee: Yes.

1264. *Chairman*: He deals with two separate things—one is control, the other is manufacture.

Sir Kenneth Lee: Yes.

Sir Stanley von Donop: If you can get all three Forces, the Army, the Navy and the Air Force, to work together for control, well and good—I think it is a very good thing not to be competing with each other, as we sometimes had to do—but as to putting all the manufacture under one control, I think that would be wrong. I think if Government manufacture were the only manufacture allowed in England it would lead to dire consequences.

1265. *Sir Kenneth Lee*: Would you think that one supply department would be desirable for the Navy, the Army and the Air Force?

Sir Stanley von Donop: I should not think it was necessary or desirable. I think it would rather hamper matters. We very seldom worked across, and sometimes when we did work across we arranged between ourselves. The subject of cordite was one thing. Both the Navy and the Army were dependent on cordite. On the Saturday before war was declared, Mr. Asquith being then Secretary of State for War, I went to him and asked him if I could place orders for munitions, including cordite. He said "No." Lord Haldane came into the War Office temporarily as Secretary of State for War—I think it was on the Tuesday—and I went and asked him the same question. He said "Yes." But when I went to place orders with the cordite firms they said, "We cannot take any more orders. Mr. Winston Churchill, the First Lord of the Admiralty, took up the whole of our supply on Saturday morning." That was the day I saw Mr. Asquith. That was very easily settled. I went to the Admiralty and they agreed it was no use their taking the whole, we must have some, and we arranged it amicably between us.

1266. *Chairman*: It was a happy accident that you were able to arrange it?

Sir Stanley von Donop: Yes, I daresay it was.

1267. *Sir Kenneth Lee*: One supply department would avoid that?

Sir Stanley von Donop: Yes.

1268. *Sir Kenneth Lee*: Is not the supply in war time of automatic machinery and machine tools of very great consequence?

Sir Stanley von Donop: Yes. I think it would help to have some arrangement in that way.

1269. *Mr. Spender*: Your general view of this subject is that the combination of the state with private manufacture, with the necessary improvements gathered from experience in the last war, meets the case.

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Sir Stanley von Donop: Yes. I think it meets the case better than having one single government manufacture.

1270. *Mr. Spender:* Of course, there has been another view expressed.

Sir Stanley von Donop: No doubt.

1271. *Mr. Spender:* It has not been put before us because we have heard only one side of the case, but there is a view which is known to the public—that is that the private manufacturers and the armament firms were obstructed by slow moving official machinery.

Sir Stanley von Donop: I do not quite understand.

1272. *Mr. Spender:* The criticism of the official world and the official mind was embodied in Mr. Lloyd George's book.

Sir Stanley von Donop: That we hampered them?

1273. *Mr. Spender:* Yes.

Sir Stanley von Donop: I am prepared to defend any case they bring before me on the subject. I think if you asked the armament firms they would say they received every assistance and encouragement from us in every way. We never hampered them in any way. I should like to hear an example.

1274. *Mr. Spender:* It was said that there were great masses of shells waiting to be filled and that the difficulty arose in the official departments.

Sir Stanley von Donop: And did the same man state that there were plenty of fuses and cartridges to go to those shells?

1275. *Mr. Spender:* I think he was more cautious.

Sir Stanley von Donop: I daresay he was. There were millions of shells lying all over the place. Anybody could make the shells, but to get the fuses and propellants was quite a different matter.

1276. *Mr. Spender:* You would say, General, that when we got into the second and third years of the War the British output was very efficient, would you not?

Sir Stanley von Donop: Yes, it was.

1277. *Mr. Spender:* I remember being told in 1916 by the French that the British 9 inch howitzer was better than any other gun on the side of the Allies.

Sir Stanley von Donop: I am very glad to hear it. We had a high opinion of that 9.2 howitzer, the one you see on the Hyde Park Memorial.

Mr. Spender: M. Clemenceau was anxious to get a large supply for the French army.

1278. *Professor Gutteridge:* The 60 pounder enjoyed high repute too.

Sir Stanley von Donop: Yes, the 60 pounder was a very good gun.

1279. *Sir Philip Gibbs:* Would you consider that our system of state manufacture, like the Royal Arsenal, and reliance on a few private firms, was built up at a time when we looked only to small expeditionary forces and small Colonial wars? Would you agree to that?

Sir Stanley von Donop: The system was built up at that time.

1280. *Sir Philip Gibbs:* And that, therefore, when we were faced by a world war, of course, that system was inadequate at that moment when we were taken by surprise and there was necessity for a large increase in everything.

Sir Stanley von Donop: By Lord Kitchener making a large army, you mean?

1281. *Sir Philip Gibbs:* Yes.

Sir Stanley von Donop: Yes. Quite so.

1282. *Sir Philip Gibbs:* And you really agree that that system was actually inadequate to a big war?

Sir Stanley von Donop: At that time; oh! yes, we could not supply what was wanted.

1283. *Sir Philip Gibbs:* You go on to point out several times that you had to extend the supply by going to a great number of private firms.

Sir Stanley von Donop: Yes.

1284. *Sir Philip Gibbs:* Therefore, it is an admission that the private manufacturers were not in themselves sufficient to increase their supplies. That is so, is it not?

Sir Stanley von Donop: You mean the ordnance firms, like Armstrongs and Vickers?

1285. *Sir Philip Gibbs:* Yes, and their powers were not sufficient really to cope with this immense increase?

Sir Stanley von Donop: No; not without enlarging and diverting a number of their sub-orders to those other firms that they took on which were capable of doing the smaller things—the components.

1286. *Sir Philip Gibbs:* Arising out of that point, did you have any connection at all with the Committee of Inquiry into the Royal Ordnance Factories at the end of the War?

Sir Stanley von Donop: No.

1287. *Sir Philip Gibbs:* As Master General of the Ordnance, I should have thought you would have been consulted.

Sir Stanley von Donop: No. I was out of the Army. I left the Army in February, 1920. I do not know when that took place, but I was never asked to go to it.

1288. *Sir Philip Gibbs:* There is an interesting sentence in the Second Interim Report presented to the Government. The Committee consisted of a certain number of rather high experts like Admiral Bacon, General Furse and so on. It was not a lay Committee. I should like to read you this sentence from the Report of the Committee of Inquiry and I should like to hear your views upon it. It says

"The magnitude of present day war operations is such that the reserve of manufacture in peace time for war development cannot be looked on as being concentrated in the Government Arsenal and two or three particular firms. The real reserve for war is the whole of the manufacturing power of the country."

That is an important statement by a number of high experts. It rather bears out the contention of people like Dr. Addison that the present system of relying on the Royal Ordnance Factories and a few specialist firms is not really sufficient if we are suddenly confronted with an important war, and that some other system might, with advantage, be adopted—not necessarily nationalisation, but control like that of the Ministry of Munitions, organising in peace time the whole of the private engineering power of the country. Would you agree with that? It raises a very large question.

Sir Stanley von Donop: Yes; it raises a very large question and I doubt the practicability of it unless you are going to set up an enormous factory and machinery. A firm that is making pens will not make shells. You must have machinery ready for the supply of the particular war munitions.

1289. *Sir Philip Gibbs:* Would it be sufficient to have gauges and models and specifications?

Sir Stanley von Donop: To a certain extent; but then you have to get the machinery. The trouble in increasing the supply was this, as the armament firms told that Cabinet Committee that I was mentioning. They said: "We will endeavour to meet your enormously increased demands," but they found the whole world was out for machinery. They had to send to America to get it and everybody else was sending to America and they could not get the machinery. I gather your idea is to have it all ready to expand?

1290. *Sir Philip Gibbs:* To have the plan of the system ready.

Sir Stanley von Donop: But you have to have all the machinery as well. You have to have all the lathes and machinery necessary for making these munitions. As things develop, patterns of guns, patterns of shells, patterns of fuses, all change; and if you have the gauges for one lot,

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[Continued.]

they are scrapped, and you have to get fresh gauges for the others.

1291. *Sir Philip Gibbs*: Some of our witnesses have emphasised the point that an ordinary engineering firm can very often readily adapt itself to the making of armaments.

Sir Stanley von Donop: I know. They said that during the War. One or two came to me and said, "Can we not do something?" I asked, "Can you do this, that and the other thing?" and they said, "Yes, we can easily adapt it." But, shortly afterwards, they came to us and said, "Will you release us from the contract?" Some of the things are easy, but some upon which the supply of a round of ammunition depends are very difficult, such as fuses and so on, and you can only get experts to do it.

1292. *Sir Philip Gibbs*: You said that when it was necessary to have an increase in the fuses the War Office found they had to go to firms which had previously been making them and that they failed in their endeavour to get other firms to make fuses. Were the fuses actually made by other firms at a later date?

Sir Stanley von Donop: I cannot answer that off-hand, but I will say this, that, later on, they did get a simplified form of fuse that was easier to make. With reference to that, I would tell you that Sir George Gihb came to see me. He was brought into the War Office to help with the supply of armaments. I told him the trouble about fuses. He said, "Why? General, any good firm could manufacture a fuse like that." I said, "Go and get me a firm who will do it." Off he went and he came back a few days afterwards with Lord Pirrie. They both entered my room and they both said, "It is absurd of you to say that no good engineering firm can make this fuse." I said, "Here are six fuses. Go off and come back when you have placed the orders." They said, "We can do that quite easily. Any firm can make them. You do not know what you are talking about." Off they went and in a week's time they came back and said, "General, you are quite right, not a single firm in England can make it."

1293. *Sir Philip Gibbs*: Could it have been simplified?

Sir Stanley von Donop: We simplified some of the fuses and made it easier, but even with a well-known firm like the Coventry Ordnance Works, we found the greatest difficulty in getting fuses to pass proof.

1294. *Professor Gutteridge*: Is it not largely a question of labour? It requires a very skilled man, does it not?

Sir Stanley von Donop: Sometimes it requires a skilled man. The Coventry Ordnance Works were making a particular fuse. At the Arsenal we were getting them all right and we told them to go there and they would be shown everything. They went to the Arsenal and were shown everything and they said "Yes, we are doing it in exactly the same way." They had a lot of conversation at the Arsenal and they found that the only difference between the way they were making the fuses and the way the Arsenal was making them was that a little piece of some vegetable paper was put in between the two rings of the fuse. The Arsenal people said "Take your vegetable paper away and try our paper," and the whole thing worked at once. It turned on the peculiar ingredient of the little bit of vegetable paper. It is very technical work.

1295. *Sir Philip Gibbs*: You also said in your statement that, in employing private firms, the War Office allowed them to sub-contract a great deal of work.

Sir Stanley von Donop: Yes.

1296. *Sir Philip Gibbs*: But Dr. Addison made a very strong point that that sub-contracting failed and that it was found necessary afterwards to cancel the sub-contracts and to have direct contracts. Do you hear that out?

Sir Stanley von Donop: No; not at all, because the Ordnance Factories and the big firms placed an enormous number of sub-contracts. That was what I was referring to when I mentioned the 2,500-3,000 firms all helping. They were mostly sub-contracts from the contracts placed with the big firms.

1297. *Sir Philip Gibbs*: Dr. Addison said that when he was Minister of Munitions he found that the whole of the system failed, partly on account of labour trouble, that the firms dealing with sub-contracts felt that they would rather deal directly with the government.

Sir Stanley von Donop: I think there is a certain amount of truth in that. What it meant was that, in the early stages of the War, many of the trades of the country stopped and, therefore, there were crowds of firms only too ready to take on work, and they took on these contracts. Then, as the War progressed, they said to themselves "Why should not we get the contracts instead of only taking sub-contracts from big firms?" They made that point and that was the reason why the smaller firms began to object to it; but they were only too glad to have it in the early days. It was a pure case of pounds, shillings and pence. They thought the big firms were making more money than they were making themselves and they wanted to be the people who were making it. I do not think it was a question of failure to do it. It was only a question of who was to get the most money.

1298. *Sir Philip Gibbs*: It seems to me that, in your defence of the private firm, you have done less than justice to the Royal Arsenal. You have not said—I think it would be rather interesting to know—what place in the scheme of armament provision is played by the Royal Arsenal. As Master General of the Ordnance, it seems to me that it would be very interesting for us to hear what you consider is the definite place of the Royal Arsenal in our defence scheme.

Sir Stanley von Donop: To begin with, shall I talk about peace time?

1299. *Sir Philip Gibbs*: Yes.

Sir Stanley von Donop: In peace time we want to keep the Arsenal going with a certain proportion of orders; we want to keep a good nucleus of machinery and men and foremen and experts.

1300. *Sir Philip Gibbs*: Is there any necessary limitation to that? Could not that be extended?

Sir Stanley von Donop: It is only a case of pounds, shillings and pence. The grant to the Arsenal in Parliamentary Papers is £100 a year. The expense of everything that is made at the Arsenal has to be met out of the price of the manufactured article. The whole of the employment at the Arsenal has to be paid for. The buildings, staff and everything else have to be paid for by the price of what they produce for war. Everything is priced at a certain amount.

1301. *Sir Thomas Allen*: A contract price?

Sir Stanley von Donop: No. It is not a contract price. They are called upon to supply a certain number of war material things and they have to do it without its costing a penny. They produce it and then they charge against it so much as the price of the shell or the gun, or whatever it is. That goes towards paying their staff. It has to be what you call a self-supporting house.

1302. *Sir Philip Gibbs*: What is really working in my mind is this. Would it be possible to increase the importance and authority and the manufacturing supply of the Arsenal and then to organise the entire engineering power of the country under the authority of the Royal Arsenal? Do you think any system like that would be possible, cutting out reliance on the expert manufacturer?

Sir Stanley von Donop: No, I do not think that would be advisable. To begin with, we placed as large orders as we could down at the Arsenal to keep a certain number of men in employment.

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Let us call the number of men 10,000; it was cut down to 10,000 at one stage, and we had to give them sufficient orders to be produced, and the price of which would meet the pay of the 10,000 men. Then, having done that, we distributed other orders to the armament firms such as Vickers and Armstrongs to keep them going. If you concentrated everything in the Arsenal, the first thing is that you would have to pay an enormous amount, and the second thing is that the other armament firms would go out of commission altogether.

1303. *Sir Philip Gibbs*: Of course, you would be gaining something by saving profits. You have to pay profits to the armament firms?

Sir Stanley von Donop: You might save a little money in that way, but I think what you would save in money you would lose in efficiency. It is a great thing for the armament firms to be there, because they encourage the development of various manufactures. It is to their interest, for example, to look round and see how they can cheapen the production of a certain thing, so that other countries who desire to buy shall come to them instead of going elsewhere. There is no encouragement to the Arsenal to do a thing like that, and it is everything to have the extra supply from the armament firms.

1304. *Sir Thomas Allen*: As Master General of the Ordnance and responsible for supply, you have told us that you were one of the few people who knew the facts at the outbreak of war. Did that knowledge at any time impress upon you that there was a disturbing inferiority in our capacity to adjust and expand our industrial situation for war needs?

Sir Stanley von Donop: I am afraid I do not quite understand. Would you repeat that?

1305. *Sir Thomas Allen*: Did your knowledge, which you have indicated to us that you possessed, of the real facts of the national situation at the outbreak of war impress on your mind at any time that in this state of emergency there was a disturbing inferiority in the armament firms' capacity to expand and adjust themselves to the industrial situation in a time of national need?

Sir Stanley von Donop: No. You see, at the commencement of the War we had only provided, and were only allowed to provide, for our seven divisions. We had everything we wanted, and the firms were fully capable of supplying what we wanted. I am afraid I have not got the gist of what is in your mind.

1306. *Sir Thomas Allen*: You have stated that "previous to the War there were very few firms in England capable of manufacturing guns, rifles and ammunition".

Sir Stanley von Donop: Yes.

1307. *Sir Thomas Allen*: So that it must have been known to someone that we were not capable under emergency of very great expansion?

Sir Stanley von Donop: Yes; but I would rather answer that, if you do not mind, by putting a question to you. Is there anybody—except one man I can name—who ever visualised our having an Expeditionary Force larger than six divisions and a cavalry division? I have asked a number of Generals. I know that the Generals at the War Office, the Chief of Staff and others had not visualised it, and I think I am safe in saying that if any Secretary of State for War had walked down to the House and said he wanted to double the Expeditionary Force and raise its strength from six divisions to twelve, he would have been out the next day. The only man I knew who visualised this was Lord Kitchener. Therefore, you see, it is rather difficult for me to answer your question, because nobody had visualised it.

1308. *Sir Thomas Allen*: In October, 1914, when the Cabinet Committee was called and they requested the armament firms to produce larger quantities, they did actually promise, and they must have known their own capacity to fulfil that promise. My point is this. Is it your view that they were

called upon to perform a task that their organised capacities were quite incapable of fulfilling and that they ought not to have been called upon to make that promise, either under pressure or otherwise?

Sir Stanley von Donop: They came to that meeting in October—that was the meeting at the War Office when I think there were eight Cabinet Ministers present—and they were all asked whether they could not increase what they had promised to supply, and the Ordnance Factories said they could not. The other firms, Elswick, Vickers, Beardmores and the Coventry Works all said "Yes, we think we can but we cannot promise" and a representative of one of the firms said to me "We are not going to be pilloried afterwards because we have not done it. We will try to do it." They went off thinking they would be able to do it. The only reason they could not do it was that they found almost every other country in the world demanding machinery from America. They could not get the machinery to do it and that was why they failed.

1309. *Sir Thomas Allen*: It seems to be in my mind that Dr. Addison told us that, after the Conference of October, 1914, and after pointing out the difficulties to which you have referred, the firms did express their ability to provide supplies by the dates given and in the quantities stated by him, and ultimately proved that they were utterly incapable of doing it.

Sir Stanley von Donop: I was present at the meeting. I do not know what Dr. Addison was doing then; at any rate, he was not there. All I can say is that the firms said they would try and do it and, as I say, one of them came to me afterwards and said "Remember, we only said we would try to do it. We will try our best, but we will not be pilloried if we fail." I am certain that every one of them did their best, but it was out of their power to do it. First of all they had serious difficulty in getting machinery. The whole world was out for machinery, they could not get it over. Also they were hampered by the Trade Union restrictions; that caused enormous trouble. Firms came to me and said "If you can get the Trade Union restrictions removed, we can increase our output by 25 per cent. at once." But on the 21st January, 1916, the Prime Minister, Mr. Lloyd George, I noticed, was still begging the Unions to remove the restrictions; they had not done so.

1310. *Chairman*: They ultimately did?

Sir Stanley von Donop: They ultimately did, but it took a long time.

1311. *Sir Thomas Allen*: I would like you to develop the point raised by Sir Philip with regard to subcontracting. You said that permission was given to armament firms to place sub-contracts with non-armament firms for components which they were capable of manufacturing. I seem to remember that, in nearly every big manufacturing district, there were meetings and protests from other firms about not being allowed to come in. Those complaints were also voiced in the Press and in Parliament. How far did they really make use of this permission to ease the situation and to facilitate the supply; and was there, in your view, any aversion on the part of the recognised armament firms to employ these subsidiaries?

Sir Stanley von Donop: I say absolutely none, from my knowledge. They were only too keen. If they could divert any of the simple components to firms that could make them, they were only too ready to pass them on to subcontractors. I have heard that complaint often raised. People said "You are not employing these people." I replied "Just send them to the Arsenal and we will show them what to make." Many went, but they all shook their heads when they got there; they said "We cannot do that". I do not think there is any justification for

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saying that any of the armament firms refused to employ other firms on sub-contracting. They were all out to help.

1312. *Sir Thomas Allen*: I would like you, if you will, to elucidate a little further this question of the shortage of shells. I want to get it clear in my mind. Dr. Addison gave us his figures as part of his evidence. In response to a question put to him by the Chairman, he said that, as far as his exhibits and appendices went, they could be accepted as part of his evidence and he assured us that those figures were correct. Do you remember hearing about a shell scandal during the time of the War—in fact, I believe it was debated in the House of Commons—and the shortage of ammunition, particularly high explosive ammunition for field guns? I think that really led to the formation of the Ministry of Munitions. Am I right?

Sir Stanley von Donop: I cannot tell you. I was not Prime Minister at the time. The Prime Minister never told us. I know it has been reported so; they reported it as that, and they reported it as something connected with the Admiralty, but what it was I do not know.

1313. *Sir Thomas Allen*: You have not made a very careful study of Dr. Addison's evidence.

Sir Stanley von Donop: Oh! no.

1314. *Sir Thomas Allen*: Therefore, you are not competent to say whether the figures he gave us are correct or otherwise.

Sir Stanley von Donop: No. I cannot say that.

1315. *Sir Thomas Allen*: You have said that with all the advantages that the Ministry of Munitions had, it was 11 months before the first complete round of manufactured ammunition was available. In the statement read to you by the Chairman just now, Dr. Addison gives the reason for that. He says that difficulties and delays occurred during the first year of the Ministry of Munitions because design was not associated at the start. You would not expect construction to proceed in the absence of design, would you? Do you think that, under the circumstances, and having regard to the whole situation, there was any time lost by the Ministry of Munitions?

Sir Stanley von Donop: Yes. I will tell you what is in my mind. Directly the Ministry of Munitions was formed, someone—I forget who it was—came over from there and said "What can we do to help you?" I replied "You can get these six things." I put them down and said "Get them in that order." I put shells at the bottom. I said "Anybody can make shells. It is the fuses and other things that we want." Off they went. At the end of two months they had not placed a single order for anything except empty shells. My answer is that they could have, if they had known anything about the subject. I am not blaming them; the fact remains that they did not know.

1316. *Chairman*: You will appreciate they were just making a start?

Sir Stanley von Donop: Quite so. They had considerable assistance. They took most of my staff away. They wanted all the experts. We gave them all the help we possibly could.

1317. *Sir Thomas Allen*: And would you agree, having had to start after others had failed, it is all the more necessary that this, shall I say absurd, position should not be reached again?

Sir Stanley von Donop: I do not know quite what you mean by saying "where the others had failed."

1318. *Sir Thomas Allen*: Failed on the evidence, partly your own evidence, and the evidence of Dr. Addison. Their efforts were inadequate to meet the situation.

Sir Stanley von Donop: We failed to meet the situation, but I would not say that it was failure to do what was possible. We failed to do the impossible. That is my point. By the beginning of

June or July we were producing an enormous amount of ammunition and all the others had got to do was gradually to increase it. I do not admit for one moment that we failed. We did not do what we had hoped to be able to do. As I say, we were faced with the increase of the Expeditionary Force from 7 Divisions to 70 Divisions and the War had shown that a much larger number of rounds per man were being fired than had been legislated for.

1319. *Sir Thomas Allen*: Then we may take it that your point is that the inability of the armament firms punctually to meet the demand was due to circumstances beyond their control?

Sir Stanley von Donop: Yes, absolutely. That is my point.

1320. *Professor Gutteridge*: One hears a great deal about shells in this connection and one often wonders whether the people talking about shells really know what they mean. But there were other things besides shells?

Sir Stanley von Donop: Yes.

1321. *Professor Gutteridge*: Was there any serious delay in obtaining heavy ordnance and that sort of thing?

Sir Stanley von Donop: You say "serious delay." We could not produce it in a day.

1322. *Professor Gutteridge*: Were the complaints chiefly about shells?

Sir Stanley von Donop: The whole thing. The "Daily Mail" and others shouted out the word "shells"! They did not know what they were talking about. We had millions of shells. What we wanted to get were the fuses and propellants.

1323. *Professor Gutteridge*: The tubes?

Sir Stanley von Donop: The tubes were fairly easy to get. The shells were easy. We knew that we could get the empty shell as easily as possible. The components were difficult to get.

1324. *Professor Gutteridge*: Was there any difficulty about the propellants?

Sir Stanley von Donop: Yes; it was very difficult to get propellants. I received an offer from America—I think it was in October, 1914—to supply a million rounds of 18-pounder ammunition. The shell we had never seen, but that was a simple thing. The fuse we had never seen. We did not know anything about it. It was a new fuse altogether. The propellant was new. We did not know very much about that. There we were faced with a million rounds and £3½ millions to pay. I remember going to see Lord Kitchener on my way back from lunch and I said to him, "Look here, sir, this is what I am faced with. Here is an offer from an American firm, but they have never made a round of ammunition of this sort for us before." I told him the fuse was a new one, the propellant was a new one, and the shell was the only thing we knew anything about. I told him the cost was £3½ millions. He said, "That is rather a large sum." "Yes," I said, "but if we do not place an order here, I do not know where else I can get it carried out. The whole of the firms are full up." Lord Kitchener said, "Place the order and let me go to lunch." That order for a million shells was placed and it was fulfilled most successfully. They came just at the nick of time, at the second landing at the Dardanelles. We were able to utilise the ammunition with great success.

1325. *Professor Gutteridge*: You say it was a new fuse and a new propellant.

Sir Stanley von Donop: Yes.

1326. *Professor Gutteridge*: That was something that had just been invented. You did not know anything about it.

Sir Stanley von Donop: We knew something about the propellant. I think it was composed of ballistite.

1327. *Professor Gutteridge*: Was it something that had been invented in this country?

Sir Stanley von Donop: No, it was American. Did I not mention that?

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1328. *Professor Gutteridge*: I did not realise that it was an American invention.

Sir Stanley von Donop: Oh! yes.

1329. *Professor Gutteridge*: In fact, if it had not been for American aid, we might have been in serious difficulty?

Sir Stanley von Donop: Up to that time America had refused to making anything for us. I think they were afraid of sabotage and other things. There was great difficulty in getting America to start on it. I placed this order and in two days I was informed that Mr. Schwab, the representative of the firm, was in America, and I was asked if he came over here would I arrange an interview for him with Lord Kitchener. I said yes. He came over and I warned Lord Kitchener that he must be very kind to him. Lord Kitchener so impressed Mr. Schwab that Mr. Schwab said "I will go back and devote the whole of my factories to the needs of England" and he did. Then other firms in America said "By Jove! this is the way to make money", and they all wanted to come in. That firm, the Bethlehem Steel Corporation, was the first to tackle the supply. Then all the others came in. That was the firm that had the new fuse and the new propellant.

1330. *Professor Gutteridge*: I am asking you this because it has crossed my mind more than once that it is just as possible for a big national factory to be caught out in such circumstances as a private firm. There must be an appreciable time for any expansion to take place. You cannot expand in a very short time.

Sir Stanley von Donop: No. You cannot get the supervisory staff. I think it was the Elswick Ordnance Company which came to me and said "If you could get the extra supervisory staff, we could expand our works at once by taking on 2,000 extra men." The superintendent of the ordnance factory came to me and said "For every hundred men I must have one supervisor."

1331. *Professor Gutteridge*: Do you think the supervisors can be trained in advance?

Sir Stanley von Donop: Yes, if you like to pay for it.

1332. *Professor Gutteridge*: It would not be a very expensive thing, would it?

Sir Stanley von Donop: I am not prepared to answer that. There is this to be said. You would have to have the trained men working on lower class work than they are really fitted for.

1333. *Professor Gutteridge*: I suppose one difficulty would be that military demands fluctuate very much and you might have to keep a large proportion of the staff standing idle at the national factory?

Sir Stanley von Donop: If you have a large national factory, capable of supplying on a large scale in war time, many would be standing idle in peace time. That stands to reason, but if the firms other than the ordnance factories have demands from other nations, they can keep the staff going and then, when war comes, they can devote the whole of their staff to our requirements.

1334. *Professor Gutteridge*: Your demands, as Master General of the Ordnance, must be always influenced to some extent by current policy. It may be highly unpopular for the government to demand munitions and therefore there may be a shortage of munitions, in a sense, on political grounds.

Sir Stanley von Donop: My answer to that would be this. In my experience, I have never found a government that did not tie us down to every penny. We have had to fight for every penny. Of course, in war time it is different.

1335. *Chairman*: I do not quite follow the system under which the Arsenal became self-supporting. For instance, if an order is given to the Arsenal, who fixes the price at which the article is supposed to be sold?

Sir Stanley von Donop: I am afraid you have got me a little out of my depth, Sir John.

I do not know who fixes it. I know there is something called the Price Fixing Department or the Price Fixing Committee. It was all based more or less on the marketable value of the shell, the fuse, or whatever it was, and the prices were adjusted in such a way that the cost of all the things that were produced by the Arsenal equalled the cost of wages, upkeep of buildings and everything on the other side, the only difference being £100, which they put into the estimates as a token to allow a debate to go on.

1336. *Chairman*: The Arsenal do not know at the beginning of the year how many orders they are going to get?

Sir Stanley von Donop: No; they do not know that, Sir. At the allotment meetings we had, when we allotted the orders, we had the Ordnance Factory Superintendent there and we said to him: "If we give you an order for so many 18-pounder shells, will that suit you?" He had to keep 10,000 people employed. He replied: "If you can give us in the shell shop an order for so many, that will keep us going." And we divided the rest among the armament firms outside.

1337. *Chairman*: Thank you. If you look at page 117 of Dr. Addison's Appendix, you will see what he says about sub-contracting. You have been asked a good many questions about that. I think I ought to ask you a question about paragraph 69, where he says:—

"With regard to sub-contracting the additions to such supplies as the firms themselves were able to provide that were obtained in this way were less than might have been anticipated and made no substantial contribution to the total output."

Do you agree with that?

Sir Stanley von Donop: No. I should not agree with that. I think the firms got considerable help by their sub-contracting. I cannot quite give you the details, for this reason, that we gave the contract to the firms and it was up to them to place the sub-contracts as they liked, as long as we knew what they were doing. We left it to them. They were responsible for turning out the completed article and we allowed them to do the sub-contracting.

1338. *Chairman*: He goes on to:—

"The reasons were threefold:—First: in the circumstances of the time the patriotic impulse of other firms was to prefer to manufacture for the State rather than for a major contractor. This disposition was manifested in the strong demand for a wider spread of war orders that had become very pronounced before the Ministry of Munitions came into existence."

Is that correct?

Sir Stanley von Donop: Yes. It really came to this. There was a great cry in the House, if you remember, "Business as usual," in the early days of the War. Everybody thought they were going to make a lot of money out of the War, they thought the War would not be a long one, and at that time firms hesitated very much to take any sub-contracts because it interfered with their particular work. Then, as the War proceeded and it was seen that we were in for a long war, the trade of these sub-contracting people gradually dried up and they came round and said: "We should like to have this sub-contract." Then, as soon as they had learned how to make the articles, having been taught by the main contracting firms, they said: "Why should not we have direct contracts with the Ministry of Munitions instead of taking only sub-contracts?" because they thought they would make more money out of it.

1339. *Chairman*: The next point is:

"Manufacture depends upon an adequate supply of precise drawings, specifications, gauges, etc., and these the major firms were unable to supply in any adequate measure to their sub-contractors. Indeed, the shortages in these respects, especially in the supply of gauges, involved delays extending

10 October, 1935.] Major-General Sir STANLEY VON DONOP, K.C.B., K.C.M.G.

[Continued.]

over three or four months after the Ministry was constituted before it was able to provide them in sufficient numbers. The provision of a supply of these critical 'key' requirements beyond their own needs clearly cannot be expected to be the business of private manufacturers."

Sir Stanley von Donop: That is all perfectly true.

1340. Chairman: Then,

"The placing of miscellaneous orders to fill the blanks in their own production created confusion in the processes of inspection and assembly and involved activities that were not in line with the ordinary work of manufacturers."

Is that correct, do you think?

Sir Stanley von Donop: I could not tell you anything about that without talking with the firms and seeing their difficulties. It is a sort of general statement to which I could not give an answer one way or the other.

1341. Chairman:

"It should be remembered that a completed article like a shell, for example, consists of a great many parts and the processes of co-ordinated assembly and inspection for the provision of completed supply are of vital importance. The state of affairs that was found to exist can only be described as chaotic, and one cannot imagine how these sections of the work could possibly be efficiently managed except by a central organisation with full knowledge over the whole field. What applies to constituent manufactured parts applies with even greater force to the assembly and filling in an orderly manner of primers, gaiters, shells, cartridge cases and the rest which make up a 'completed round'."

What do you say about that?

(The Witness withdrew.)

Major-General The Honourable Sir FRANCIS R.

1344. Chairman: May I give a statement of your positions, so far as it has been supplied to me. You were Chief Instructor of the School of Gunnery, 1911-13; Deputy Director of Artillery, War Office, 1913-16; Member of Council, Ministry of Munitions, 1916; Director of Design, Ministry of Munitions, 1916-18; Chief of British Section and President of Sub-Commission for Armaments and Material, Military Inter-Allied Commission of Control, Germany, 1919-24; Lieutenant-Governor of Jersey, and commanding troops in Jersey district, 1924-29. Is that correct?

Sir Francis Bingham: Yes, Sir.

1345. Chairman: You have supplied us with a statement of what you wish to say to us.

Sir Francis Bingham: Yes.

1346. Chairman: Would it be convenient if you were to read that, or would you sooner make a separate statement?

Sir Francis Bingham: So much of what is in my mind has already been said by Sir Stanley. I served under him at the War Office and I have asked for permission to give evidence to-day because I consider that he and I are the only two people living, except the members of the firms, who can speak of what the armament firms did in those early days of the War. I gave orders—of course, under the Chief—for every round of ammunition ordered from August, 1914, until May, 1915, and I want to say here publicly that we owe a deep debt of gratitude to the armament firms for what they did in those months. They did not fulfil their promises, as Sir Stanley has told you, but they did marvels considering the small orders that were given them in peace time and considering the difficulties which Sir Stanley has already explained, and which I feel too. I am afraid I speak strongly, but I feel strongly on this subject.

Sir Stanley von Donop: What I say about that is that I am very pleased that the lesson that I had to ram into the heads of our Ministry of Munitions has produced a pupil who knows his lesson—because he did not know it at first. For the first two or three months I could not get them to understand that a shell was not a round of ammunition. Mr. Balfour was sitting next to me at one of the meetings. It was about two months after we had had a meeting of the Ministry of Munitions people, and Mr. Lloyd George turned to me and said "General, you have got to remember that a round of ammunition does not only mean a shell". Mr. Balfour turned round to me and said "General, fancy his telling you that, when you have been ramming it into them for the last two months." It is quite true the completed article, the shell, consists of a large number of things. When I put down "shells" and "components", they did nothing but order shells for two months. Anybody could make shells.

1342. Chairman: Is there anything you want to add?

Sir Stanley von Donop: There is just one matter. May I be allowed to ask this question? With all this discussion that is going on, I rather want to know, for my own information, what is the policy that we are now supposed to work on? Are we to work in future on a policy of six or seven Divisions, or are we to work on a policy of 70? Because a great deal depends on that.

1343. Chairman: I should require notice of that question, and I should say if you had given me notice I could not have answered it!

Sir Stanley von Donop: It was really for my own information. I wanted to know what policy we were working on.

Chairman: Thank you.

BINGHAM, K.C.B., K.C.M.G., called and examined.

To show you the shortage of machinery: In November, 1914, I personally had to say whether four turret lathes for the manufacture of guns were to go to the Arsenal or to Armstrongs. There were only four, from John Lang, of Edinburgh. There were not any automatic machines in the country, they had to be ordered from abroad and they came into the country in the early spring of 1915. Labour was in a very unsettled state and the rules of the A.S.E. were very restrictive; in my opinion they would not have tolerated at that time the control to which they were eventually subjected until the seriousness came home to them in 1915.

The statement has been made that we only employed the armament firms, but this is not correct. When Lord Kitchener told us that the Army had to be increased my orders were to get everything that I could and where I could, and I have a paper here which will show you the numbers which I ordered. When I say "I," I was naturally under the Chief. This shows that I ordered 15,000,000 shells from America, nearly 11,000,000 from Canada, 11,000,000 from the trade in England, and 1,500,000 from the Ordnance Factories, and I say this, that those orders were given—not, as Dr. Addison says—because of the failings of the armament firms, they were given because we saw no other way of getting them, and I took everything, wherever I could get it. In those months I refused only two orders—one was fraudulent, which I need not go into, and the other was the offer of a commission agent who would not deal with Morgan's.

I am making this statement as short as I can, Sir John, because you have already heard a lot about the matter. Now I come to the most important part. Without the design department of

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Major-General The Honourable Sir FRANCIS R. BINGHAM,
K.C.B., K.C.M.G.

[Continued.]

the armament firms we should have been without the best guns and howitzers of any army in the field. Without going into technical details, I can say that with the exception of the guns taken to the field by the Expeditionary Force every new gun and howitzer was designed by the experts of Vickers and Armstrong from 1914 onward. May I give you a little sidelight to show their value. One of my German *vis-a-vis*, when I asked him which was the best gun in any of the armies, replied, "There is no question. Your 6-inch howitzer designed by Vickers. I asked, "How do you know?" "When they were captured" he said "they were given to me to use." I apologise for that interpolation, I say that to illustrate the value of the design departments of the great armament firms.

If there is an idea that a Government Department for the supply of war material can function without the help of armament firms, then I say that the nation adopting this practice would be working with one hand tied behind its back. And why? No nation, no government, can afford to pay in peacetime the great technical experts that those firms employ, to whom they pay high wages. They have a knowledge of what is going on with regard to foreign armaments—probably they are making them—and their knowledge is at the disposal of our country when it is required. Do France or Germany, for example, trust to a government organisation for their material? I know they do no such thing. It may interest you to know, Sir, that we inspected 7,000 factories that had made war material for Germany of one sort and another. They did not trust the government factories.

Dr. Addison stated that if there had been a Ministry of Munitions in August, 1914, thousands of lives would have been saved. I ask you, Sir: Who knew what the expenditure upon gun ammunition would be? The only information we had was that, during the four years' war between Russia and Japan, the Japanese fired 1,000 rounds per gun. I know what Germany had, I know what France had, I know what we had. They all kept 1,000 rounds per gun as their stocks. Supposing there had been a Ministry of Munitions then. You can hardly imagine it because you would not want a Ministry to supply six divisions. Also, who knew then that we would eventually have to control the whole of the labour of the country, the whole of the raw materials of the country and divide it up as between the public and the Services? Nobody knew the requirements, nobody knew what sort of supplies were wanted, and they did not begin to trickle in until May, June, July.

Later on, I see that Dr. Addison says that some Artillery Officers were averse to employing firms other than the armament firms. I must confess I cannot think where he got this idea. I was the Officer who ordered the ammunition and I employed everybody I could get hold of in this country—as I told you before, in America, in Canada, and I even ordered ammunition in India.

Dr. Addison states, in paragraph 7 of his evidence, on page 110, that a few orders were placed in Canada with the Canadian Government. He forgot to state that I personally ordered £6,000,000 worth in America and considerably more through Messrs. J. P. Morgan. I do not know whether you would care to have those figures. They show the orders placed by the War Office between August, 1914, and May, 1915.

1347. *Chairman*: Yes. Thank you. (Statement* handed to the *Chairman*.) This will be appended to your evidence and will become part of the record.

* Appendix, p. 228.

Sir Francis Bingham: This is actually an extract from the War Office Contract Book.

If I may amplify one point which I understand is the main point. Dr. Addison talks about the necessity of a Ministry of Munitions in 1914. I have said it is unthinkable. But it is not unthinkable for another war, now we know that you may possibly have to take the whole of the labour, the whole of the raw material, and control everything. In my humble opinion, there should be a skeleton, a nucleus, a cadre, to come into action at the commencement of the war.

1348. *Sir Thomas Allen*: Before you proceed further: In addition to possible, would you say that it is desirable, in that event?

Sir Francis Bingham: I only state my own opinion. It would be desirable. Knowing what we do now—and we had the bitter experience—I would say in peace time certainly not, because no country can afford to pay for it and keep it going and it would get starved financially. My personal opinion is that there should be a cadre that would come into action at the beginning of the war, but, to provide for the lag until it came into production, you must rely, as we did, on the Ordnance Factories and the armament firms.

1349. *Chairman*: That was the result of your experience during the War?

Sir Francis Bingham: That was the result of my experience—a bitter one, I am afraid.

1350. *Chairman*: Do you wish to add anything?

Sir Francis Bingham: No, Sir John. I have said what I wanted to come here and say. I want to express my gratitude—when I say my gratitude I mean the gratitude of the people who were trying to get the stuff—to the armament firms for the way they expanded and did the best they possibly could.

1351. *Sir Thomas Allen*: I think it ought to be made clear that Dr. Addison was not so much concerned to make an attack on the armament firms. I do not think, throughout the whole of his evidence, it can be shown that he did make any direct attack upon the armament firms, as such. I think he would be the first to admit that they did their best under the circumstances in which they were placed. His whole case, as far as I understood it, was that the system under which they had to work at the beginning of the War was such that it was not enough and that reliance on that system was a dangerous thing and, as far as practicable, the system should be amended in that respect in the future.

Sir Francis Bingham: Quite so, Sir. I am afraid I have been talking of the past. I have been saying how we were and shall be in the future relying on the armament firms and the Arsenal. I do not say he made an attack, but I was bound to make a reference to his statement that only a few orders were placed with them owing to their failure. I draw attention to the actual facts. One more point. As I am not an expert on pricing and costing, I have not said anything about it, but, as Dr. Addison has said a great deal about costing, I would say that I am perfectly certain that it would be far cheaper for the country to pay the little extra in overheads on what they order from the armament firms than to pay for an expensive government department which, if you had peace for a number of years, would be growing idler and idler and deteriorating. In fact, it would be a much cheaper proposition and just as serviceable.

1352. *Chairman*: Thank you. We now adjourn. There are no more witnesses to-day.

(Adjourned.)

APPENDIX.

Type of Shell.	Shell ordered by War Office—August, 1914—May, 1915.				
	C.S.O.F.	Trade.	Canada.	U.S.A.	Indis.
12" How. H.E. ...	—	32,000	—	10,000	—
9·2" " " ...	—	85,775	—	42,000	—
8·0" " " ...	—	149,300	—	39,000	—
6·0" " " ...	—	313,400	—	277,000	—
6·0" How. Shrap. ...	—	12,000	—	—	—
5·0" How. H.E. ...	—	400	—	95,000	—
5·0" " Shrap. ...	—	30,000	—	—	—
60 pdr. H.E. ...	20,200	207,850	300,000	60,000	—
60 pdr. Shrap. ...	31,300	156,300	—	—	—
4·7" H.E. ...	—	235,400	—	120,800	—
4·7" Shrap. ...	—	24,500	—	30,000	—
4·5" H.E. ...	76,600	1,010,400	{ 700,000 1,866,666 }	575,000	—
4·5" Shrap. ...	54,540	400,000	—	—	—
18 pdr. H.E. ...	{ 122,000 20,000 }	3,373,000	125,000	2,050,000	—
18 pdr. Shrap. ...	638,440	{ 3,139,283 606,000 }	3,266,666 625,000 3,466,666	4,750,000 100,000 7,250,000	60,000
15 pdr. H.E. ...	—	180,000	—	—	—
15 pdr. Shrap. ...	11,000	508,800	300,000	—	—
13 pdr. H.E. ...	—	40,000	100,000	150,000	—
13 pdr. Shrap. ...	194,000	182,000	—	—	14,000
2·75" H.E. ...	—	82,500	—	—	—
2·75" Shrap. ...	3,260	9,000	—	—	—
Totals ...	1,171,340	11,261,908	10,749,998	15,548,800	74,000

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

TAKEN BEFORE THE

10

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

TENTH DAY

WEDNESDAY, 30TH OCTOBER, 1935

WITNESS—

MR. P. J. NOEL BAKER, M.A.

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TENTH DAY

Wednesday, 30th October, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Mr. P. J. NOEL BAKER, M.A., called and examined.

1353. *Chairman*: Mr. Noel Baker, I should like, if I might, first of all to put on record what your experience has been. I see that in your Statement* you say: "Throughout most of the period since 1918 I have been more or less closely in touch with the actual conduct of international affairs. I was a member of the British Delegation to the Peace Conference in 1919; personal assistant to the Secretary General of the League of Nations 1920-22; private secretary to the principal British Delegate to the League of Nations 1922-24; personal assistant to the League of Nations High Commissioner for Refugees 1925-29; Parliamentary Private Secretary to the Secretary of State for Foreign Affairs 1929-31; British Delegate to the Assembly of the League of Nations 1929 and 1930; private secretary to the President of the Disarmament Conference 1932-33."

Then by your Statement you have in various chapters dealt with the various points which you think are of the greatest importance in this particular matter, and I think I may safely say that anybody who reads the Statement will come to the conclusion that you have presented your case very fully and very carefully and very capably. Now will you say what you wish to say to us.

Mr. Noel Baker: Sir John, I want to begin, if I may, by thanking the Commission very warmly for giving me this opportunity of appearing, and apologising for abusing their indulgence by presenting such a very lengthy statement of evidence as that which I have submitted. I am afraid, in spite of the kind words which you have just said, that members of the Commission may have thought that it was too verbose. I did my utmost to keep it within reasonable limits, but the difficulties were rather considerable because I think that this is more or less the first occasion on which any academic student—and so I call myself primarily, for so I started—has attempted to make a coherent, reasoned examination of all the technical and practical arguments which are advanced in favour of the system of private manufacture. It is very difficult to deal with those arguments in a summarised form—at least, so I found when I was trying to do so—because either you misrepresent the arguments, or else you make your analysis of the arguments incomplete or inadequate. I dare say that the Commission have also observed that my paper is not only long, but guilty of repetition in more places than one. Again I apologise, and again I explain that those who use the technical arguments with which I was dealing, are not always guilty of what I might call the clearest of thought, and that apart from that, in certain places the technical arguments

in fact overlap, and therefore I was not quite master of the case which I had to examine.

Now, as I said, I have been studying this subject as an academic student for a very considerable number of years, and in the course of that time I have changed my view of the matter very considerably. When I began—and it was really the principal reason why I took up the study of the subject—I used to think that the moral aspect of this matter was of overwhelming importance, and I confess that I used to share the views of those who thought that the private manufacturers were guilty of such offences against the standards of civilisation which modern society accepts that they might almost be termed sub-human, and that it was urgently necessary, on moral grounds, to do something to bring their activities to an end.

I used to think, on the political aspect of the matter, that while private manufacture was undoubtedly a contributory cause, or, shall I say, a contributory assistant to the forces that make for war, nevertheless it was very secondary, and I scouted as ridiculous the view of those who spoke as though, if private manufacture were abolished, peace and disarmament could be established overnight.

On the other hand, so far as the technical aspect was concerned, I used to think that the difficulties of dealing with private manufacture would be very great, that its abolition would be an extremely complicated, if not indeed impossibly complicated, affair, and that the practical case, the concrete technical arguments, for the retention of private manufacture, were, from a certain point of view, very strong.

On all those three aspects my views have changed. I would not say that I now admire what I might call the ethical standards involved in the system of private manufacture, but I do say that in a great deal of what has been said about it there are two major errors. It is wholly wrong to fasten full responsibility, or even principal responsibility, for the results of the system of private manufacture on the manufacturers themselves. It seems to me unjust, it seems to me wrong and it seems to me fallacious. The system is created and maintained by governments, and for the most part by democratic governments, and I have argued in my Chapter III, to which I will not further refer, that in a great number of ways which I there detail, governments have actively supported the system of private manufacture, and have encouraged private manufacture in all the ways in which it is possible for governments to do so. Therefore I say it is unfair and unjust to the individuals concerned, and what is much more important from my point of view, it distorts and obscures the truth, distorts and obscures what is

* See Appendix p. 258.

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MR. P. J. NOEL BAKER, M.A.

[Continued.]

important in this matter, to attempt to fasten more responsibility upon the private manufacturers than they ought to bear. They work a system for which, under democratic systems of government, we are all responsible.

Furthermore, however much we may object to private manufacture, there is not very much to choose, in my present view, from the ethical point of view, between the morality of private manufacture and the morality of much of the rest of the preparation for war. If one contemplates, for example, espionage, or even the actual training of men to use such instruments as tanks, poison gas and aerial bombs against other men, or against men, women and children, one is forced to the conclusion that war is amoral, that the preparation for war is amoral, and that therefore there is no reason to think that the case against private manufacture is stronger than the rest of the case against war and the preparation for war from the moral point of view.

In the second place, my view on the political aspects of the matter has changed a great deal. I have come to think the political importance of private manufacture far greater than I used. I still would not say that private manufacture is the only cause, as some people say, or even the principal cause of war, but I am nearer to the view of Admiral Lord Wester Wemyss than I used to be. I do think that the system of private manufacture is, in his phrase, among "the principal authors" of war. I do think that it is a factor of first-rate importance in the process by which wars are caused, and I would call again to the memory of the Commission the verdict of Lord Grey which I quote in paragraph 11 of my Statement, that it was the armament competition, above all other causes, which brought about war in 1914; and I recall the judgment of Admiral Lord Wester Wemyss that the system of private manufacture played a great part in stimulating that armament competition. I venture to quote again his language, because it is, as I think, very important. This is what he says. It is on the second page of my Statement:

"Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, the system is attended by the inevitable consequence"

and I note the word "inevitable"—

"that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of any kind naturally wants the largest possible output. Not only therefore has it a direct interest in the inflation of the Navy and Army Estimates and in war scares, but it is equally to its interest to push its foreign business. For the more armaments are increased abroad, the more they must be increased at home"

and he goes on to speak of the

"interrelation between foreign and home trade in armaments as one of the most subtle and dangerous features of the present system of private production."

I venture also to recall to the Commission the fact that Admiral Lord Wester Wemyss had evidently followed this matter very closely for a long time; it was not a casual view he happened to form in 1918, because his biographer, who was his wife and who therefore would know what he had been thinking day by day throughout the years that preceded the War, describes in the biography how, in his view, this "subterranean conspiracy," as he called it, actually worked; and here are her words:

"For years before its outbreak he had watched the baleful activities of the armament trusts; the manner in which they had, heavily subsidising the Press, influenced public opinion in every country, stirring up strife and creating an atmosphere of hostility, ill-will and suspicion between nations."

It was for that reason that he thought that the armament firms were the principal authors of the last war, and Admiral Lord Wester Wemyss is a witness of no ordinary kind, because when he wrote this paper which I have quoted, for the consideration of the Admiralty and the Government of the day, he was the First Sea Lord, which means that he held the highest and most eminent post in all the armed services of the Crown, and he held it during the last and decisive year of the War; that is to say that there has never perhaps been, in the history of this country, and of our Empire, an officer who held greater responsibility than Lord Wester Wemyss held at the time when he wrote this paper. Not only so, but there were very few people who had greater opportunities than he had for knowing the facts from inside. It is quite evident that his judgment is based upon, one might almost say, a life-long consideration of this matter, and that it was the result of a passionate conviction which he had formed.

It is in fact confirmed by other judgments of other people, and as I understand history, the passage of time and our greater knowledge has only confirmed the view, not only that the armament competition, as Lord Grey said, was a vital factor in bringing about war, but that the armament interests were a tremendously important factor in stimulating that armament competition. To take one concrete illustration, as I understand the passage of time and the greater knowledge we have to-day, it seems to me that the Mulliner episode, if I may quote one instance, had a far greater political importance than it appeared to have even at the time.

For all those reasons, which I am afraid I have elaborated at rather great length, I feel that the political importance of private manufacture is far greater than I originally thought it, and that the political reasons for removing the armament vested interests are far more urgent.

On the technical aspect, my view of the problem has also changed. I used to think, as I said, that the difficulties of abolishing private manufacture and of establishing government monopoly were very formidable, that probably the existing system did involve some differential military advantages to the country which had a strong armament industry, and that therefore, whatever moral or political reasons one might urge, there might be military reasons which it was very difficult to set aside, at least so long as we lived in conditions of what I venture to call in my Statement "international anarchy". I no longer believe that. On the contrary, I have come to believe that the technical difficulties are probably less than in any other large-scale operation which the State would be likely to carry out, that the practical advantages of the present system are far less than they appear to be, and indeed that on grounds of practical advantage, the merely technical considerations of military advantage and nothing else, the balance would probably tip over in favour of the system of abolishing private manufacture even in the conditions of international anarchy in which to a certain extent we still live to-day.

In my Statement I have devoted by far the greater amount of time and space to these technical and practical considerations, and if there is anything of value in my statement to the Commission, I think it probably lies in my analysis of the arguments which are in current use on this aspect of the matter. I have started, for this purpose, from the proposition that the evils of the system of private manufacture are admitted, and that under the terms of reference of the Commission, what His Majesty's Government desire is to have advice as to how these admitted evils can best be dealt with, and in particular whether there should be abolition of private manufacture or a system of more or less elaborate control. I support my adoption of that starting-point by quoting a speech made by Mr. Baldwin in Glasgow

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on November 24th last year, in which he said that he believed that the only method of dealing with "these undoubted malpractices, of which they had allegations and in some cases proofs, lay in control, and that control could be exercised." In other words, Mr. Baldwin admits that malpractices exist and have been proved.

Nevertheless, I thought it desirable, and perhaps in accordance with the wishes of the Commission, that I should offer from my personal experience some evidence with regard to what I believe to be the evil effects of the present system, to show why I have come to adopt Admiral Lord Wester Wemyss' view more fully than I used to; and I have explained in my Chapter II how I think it works, why I think the armament interest does create a powerful force in public life which, by its very nature, and without, necessarily, corruption on anybody's part, works, and must work, in favour of increased armaments, and by the very character of its connection with government departments must exercise a steady pressure in favour of an increase of armaments, whether there is political justification for such an increase or not. I have tried to state that as succinctly as I could in a paragraph in Chapter II of my Statement—

"The investment of large sums of private capital in armament production creates a permanent and powerful vested interest, the participants in which all depend for their prosperity on the policy which Governments pursue in respect of armaments. By the nature of the case, the controlling representatives of this vested interest wield great financial power, are brought by the necessities of their business into close contact with Governments Departments, and generally possess or are able to establish close political connections. This vested interest constitutes a powerful force which inevitably favours the increase of armaments and opposes those policies which tend to diminish armaments and reduce the risk of war. It exercises this influence in all important countries in a more or less open and in a more or less effective way. Its methods differ according to the political habits and practice of different countries. But whatever its methods, the effect is the same: the steady pressure of an elaborately organised and financially powerful vested interest against policies which make for peace and in favour of the increase of armaments, whether there is political justification for such increase or not."

Now, I have argued that it is not so much a matter of a variety of minor evils, corruption of government officials or the making of international rings or the selling to potential enemies or any such thing. That is not the major significance of private manufacture. It is rather that it creates a steady and permanent political influence of major importance in the public life of many nations and in the international politics of the world.

In my Statement I have cited two practical illustrations of what I mean. The first is from my own experience with Mr. Henderson at the Disarmament Conference in 1932-33. Now, anybody who was present in the early stages of that Conference and who was able to keep touch, as I was from my position, with what was really happening in the different Delegations which took part in the Conference, is well aware that at the beginning there was a very strong feeling that there must be a result, that a disarmament treaty must be made. I will not say that the views were very ambitious; they were not thinking of very drastic disarmament; but there was a conviction and a determination that there must not be a failure, that a treaty of some kind must be made. The idea of separating or dissolving the Conference without a treaty was definitely ruled out, for the reason, if you like, that there was no government there that was ready to take the responsibility of going back to its people and saying that it was responsible for the failure. Now, from the first day

onwards, the Press of various continental countries whose adhesion to a disarmament treaty was absolutely vital to success, set itself to undermine this resolution of the Conference to get a result. There was, from the first day, a continual campaign of defeatism, of misrepresentation, of suppression of the truth and of suggestion of what was false, and I noted particularly that papers which were known to be under the influence of armament firms, or owned by armament firms or by those who were interested in armament firms, were the leaders of that campaign. I noticed that it was by no means confined to those papers, that other papers, the policy of whose parties was normally in favour of peace and disarmament, were often guilty of gross misrepresentation. I noticed that if things were going well in the Conference, the attack was always particularly severe. It was not my own personal observation only; a great many people have talked about it, and some responsible people have described it in public utterances.

I will cite one public utterance, because I happen to know both the men concerned, and I know them to be of the highest possible integrity and international standing. The extract which I am going to quote is from a speech by Senator Rolin, of Belgium, whose standing in Belgium, and indeed in Europe, will be well-known to the Commission. It was a speech on the subject of private manufacture in general and the relation of private manufacture to disarmament. It was delivered in the early months of the Disarmament Conference in 1932, at a time when the disarmament question was greatly complicated by the issue of the Japanese aggression in Manchuria, and M. Rolin was discussing the action of the Press of a great many countries in favour of Japan, and in particular in France, which had always been for the policy of collective security, but yet, when a practical case of upholding collective security arose in the Manchurian affair, failed to uphold the Covenant, and where the Press, which had always spoken most strongly for League security, came out, paradoxically, very strongly in favour of Japan, it being known that at that time the Japanese Government had placed very heavy orders for arms and munitions of war with the French armament firms.

Now, this is what M. Rolin said. I will read it in French, with the permission of the Commission:

Et ces jours-ci, n'avons-nous pas vu, à propos des incidents sino-japonais, la grande presse de la plupart des pays déformer de la façon la plus évidente les événements qui se passaient là-bas, oublier de la façon la plus criante les garanties que leur propre pays pourrait demander un jour à la Société des Nations, et prêcher cyniquement la violation du Pacte? Et comme je m'en étonnais, un Français bien informé de ce qui se passe dans la presse de son pays et qui occupe une position officielle dans un grand organisme international m'a dit, en levant les bras avec découragement: "Que voulez-vous? Ils sont tous payés!"

I know the French official in question; I know his integrity and his knowledge of the Press of his own country and indeed of other countries, and I regard that as a very serious piece of evidence that in fact money was used by vested interests to secure the misrepresentation of what was taking place in the Disarmament Conference.

Now that was supported by further experience of my own in the lobbies of the Conference. When things were going well, not only were Press attacks made and not only did they become keener as things went better, but also rumours used to spread like magic through the lobbies of the Conference that the Conference was about to break up, that such and such Great Power delegations had come to an agreement that there must be an adjournment for an indefinite period of time. Now those rumours did not happen once or twice, but on dozens of occasions, always in a new form, usually connected in a very ingenious manner to something which was true, so as to give them an air of verisimilitude. They were very

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persistent; they were very demoralising; they had every air of being organised, to anyone who followed the matter rather closely, as I did. They always came from nowhere; I could never trace the original source. They were always untrue, and I say that with a knowledge of the facts; and I came to the conclusion that there was no doubt whatever that they were in fact the work of paid agents, like Mr. Shearer. But, of course, in view of Mr. Shearer's subsequent experience after he left Geneva in 1927, his condemnation by President Hoover and his experiences in court, these agents did not follow his example of making their activities publicly known; they acted with the utmost discretion and covered up their tracks. I used to hear, from those who thought they knew, talks of a central propaganda office organised in another city further up the Lake of Geneva, and I was even given the name of the man who was head of it. I was never able to trace it through, and I do not offer any evidence on that point. That does not alter my conviction that Mr. Shearer's spiritual brothers were at work in the Conference.

Now I do not want to dilate too long on this question, but I would like to offer one other piece of evidence, and I hold it in my hand. It is a special edition of a Parisian journal which is called, as the Commission will observe, *Nous*. It is dated February, 1933. That was a critical moment in the history of the Disarmament Conference, when it came nearest to success. It followed the French proposals made by M. Paul Boncour for the settlement of the question of man-power. It was at the time of M. Pierre Cot's proposals for the total abolition of air forces. It came simultaneously with the British Government's programme of work which followed Mr. Baldwin's great speech in the House of Commons on air disarmament, about which I shall say another word in a moment. It came at a time when the Daladier Government was ruling in France, a government which worked with all its power to secure a disarmament treaty, as everyone who was in Geneva at that time will agree. A credible witness has assured me in writing that 70,000 copies of this paper were printed. Certainly I know that it was widely distributed on the bookstalls in France. It was issued, as I say, in February. It was redistributed in September, 1933, shortly before the critical meeting at which Germany left the Disarmament Conference of the League of Nations. At that time I am told by the same credible witness that it was sold, and that she purchased it on the streets of Paris, in September, 1933, although at that time, according to her, the office of the paper had been shut up and the paper was no longer being issued. It was cited, with this issue as evidence, in important articles in the British Press in March, 1933, and in the September of that year. Now when the Commission look at this special edition they will see that it is a very elaborate study of German re-armament, that it is done by people of the highest possible *expertise*—no journalist could have done that; it is impossible—that it was very costly, that it is full of tables, photographs, diagrams of all kinds; some of the photographs, unless I am mistaken, must even have been faked, and that, I think, is a costly process. It was obviously the result of many years of work. It goes back a long way into the post-war history of Germany. It is very highly tendentious. Issued in February, 1933, it came out at the moment when Hitler came into power—in other words, before the German rearmament had begun—at the time when, as determined by Marshal Foch and the Allied Commissions in Germany, Germany was really effectively disarmed. But no one could read that paper and take it at its face value without believing that Germany was more heavily armed than she had been in 1914, and perhaps more heavily armed than any other power in Europe.

Now I conclude from this, and I submit to the Commission that it is a justified conclusion, that

that special edition of *Nous* was undoubtedly paid for by vested interests which were hostile to disarmament, which desired to defeat the work of the Daladier Government for securing a disarmament treaty in Geneva, and that it was probable that large sections of French public opinion, and perhaps even beyond France, since it was used by the Press in other countries, were influenced in that direction.

Now I go on, Sir John, to my second illustration; and here I want to ask for the indulgence of the Commission because I realise that I am doing something which may earn me great hostility in certain quarters, and which may seem unjustified to some honest people. I do it because I have a very deep conviction that what I say is the essential truth of the matter. This illustration is drawn from the history of the debates on air disarmament in the last few years and the part which has been played by our country. The main propositions I have put forward in my Statement are as follows—that the Disarmament Conference very nearly came to an agreement on drastic measures of air disarmament combined with the internationalisation of civil aviation; that that, if it had been carried through, would have been of supreme strategic advantage to our country, because it would have made it once more an island and would have secured our overseas supplies, on which we depend for our lives and for our industry, from the terrible menace of air attack; thirdly, that drastic air disarmament and the internationalisation of civil aviation was vastly to the real long-period interest of this country and of the air manufacturers, the air industry, the air interests themselves.

On those propositions I will not say very much. I was at the Disarmament Conference, I heard all the debates, and I am perfectly certain myself that it is true to say that it very nearly succeeded, that if our technical delegates in the Air Committees had thrown their whole heart into supporting Mr. Baldwin's appeal for total air disarmament instead of obstructing what was done to achieve that end, then total air disarmament would have been achieved; that the forces in favour of it were so strong, that so many Great Powers had agreed in principle—even Germany withdrew her opposition—that if we had come in on the right side and had fought for it, I believe it would have been irresistible in the Conference.

I will say no more on the strategic advantage to this country. It seems to me that we have only to think about it for one moment to see that it is true that if we could get rid of air warfare and the danger of air warfare altogether, nothing could do so much to give us real national security both for ourselves and for the British Empire as a whole.

I will not say very much about the interests of the air manufacturers and the air industry. I do not think they very often reflect on the fact that if another war does begin their factories will be the first target, that by their character their factories cannot be protected—they cannot be put underground; they are much too big—they will be a very vulnerable target indeed. And I am perfectly certain that the air manufacturers—I say this having read a great deal of their writings and speeches—do not give anything like sufficient importance to the immense expansion of civil aviation which the world now requires, and which the internationalisation, as it is called very loosely, an international regime for the control, of civil aviation, would permit.

I will give an illustration. I have said in my Statement that I think that air lines could perform for the world at large the same kind of service that railways now perform for national states. The total capital of all the commercial air companies in the world at the present time is about £16,000,000. The capital of the Great Western Railway alone is something like £300,000,000. If we could get real internationalisation of civil aviation, the use of which is now required for mail purposes, for passenger purposes, and even for freight purposes throughout the

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world, we should in due course have an expansion of that order. I would make a comparison with the ship-builders of the pre-war era who, if you judge by their annual reports to their shareholders, rejoiced a good deal in the prosperity which came to them from the naval competition between this country and Germany. They used to say at that time that one-fifth of the whole industry of ship-building in this country was employed in naval work. It is quite true; but that competition, as Lord Grey says, was the decisive factor in bringing the War. The War has brought a great wave of economic nationalism to the world, and as a result over four-fifths of their industry has languished ever since. In other words, the real long period interests of ship-building were very seriously compromised by that naval competition before the War, and I venture to think that the real interests of the air industry in this country will be compromised by this air competition into which we are going to-day.

I turn to my contention that the air interests of this country were educated to think that international co-operation, the League of Nations, peace and disarmament were all nonsense, and that it was because they were so educated that the British agents in Geneva were able to take an obstructive attitude against Mr. Bakwin's policy, instead of giving it whole-hearted support. If the air interests had even been divided, if there had been an important section of leading air experts in this country who were actively fighting for disarmament, for international solutions of the air problem, I am personally convinced that the thing would have been irresistible here and, therefore, in Geneva. When I say that the air interests were educated to think that disarmament and the League of Nations were nonsense, as I do in my Statement, I have cited two principal agencies, namely, the periodical journals which are devoted to aviation, and the Patriotic Societies which are principally interested in aviation. Now it may seem that those agencies are not sufficient to educate the air interests in any particular direction; but I would remind the Commission that air-minded people are a very special class, that aviation is a tremendously absorbing profession. As one who has never learnt to fly—and I bitterly regret it—I find it extraordinarily absorbing and fascinating myself, and I am perfectly certain that anyone who can fly must become so wrapped up in it that other interests seem entirely secondary to them, and that therefore the influence of specialised journals and specialised societies must be very great upon their minds. Therefore I think it follows that if all the periodical journals and all the organisations concerned with aviation were taking a strong line against disarmament and against international solutions, it is very likely that the air interests would be strongly affected by that fact.

Now I want to say a little about these two main educative forces. I start with the periodical journals. It is broadly true that almost all these periodical journals have taken a strong line against disarmament. Not all of them; some of them are almost entirely technical and hardly ever mention political subjects at all. Others mention them a good deal. I cite in the first place a publication known as the *Air Annual of the British Empire*, and from the preface to the issue for 1933-34—that is to say, the year when air disarmament was so much under discussion—I will quote one passage:

"Let us then seek refuge in a strong air force and not gamble with sentiment. The progress of civilisation is more likely to be hastened and the risk of war actually made less by allowing aviation to develop and to take its rightful position among the defence forces of the country. The alternatives are to retard human progress and to revert to years of attrition in which the loss of life and human suffering even among the civilian population will be far more intense, not only during the war itself but in the succeeding years of peace".

Then there is a great deal more about the futility of trying to impose restrictions on weapons.

Now that is, perhaps, only a slight indication. It does, however, represent a very definite point of view, and it is not the point of view which at that time was being put forward by Mr. Baldwin, who was the Chairman, and who has for very long been the Chairman, of the Committee of Imperial Defence.

There is a little quotation from *Aircraft Engineering* which is almost entirely technical, but which does say that to hear aeronautical experts discussing air disarmament is a very incongruous picture, and in general speaks in a very slighting way of the discussions in Geneva.

There is a paper called *Popular Flying* which, in its issue of December, 1933, says:

"For the past few years most people have had a difficult time, and some of the firms in aviation have not escaped the draught. Better times are ahead. Prophecy on any subject is dangerous, and with aviation particularly so. Never mind, let us take a chance . . . In military aviation, everything points to real activity in the workshops in the near future. It will begin when the Disarmament Conference goes to pieces, as it most certainly will. Great Britain, having showed willing by leading the way in partial, practical disarmament . . . will proceed to arm herself. It is about time. And as things are definitely looking up we may look forward to more money than usual being allocated to the Air Ministry which, if it is properly handled, should mean a bigger Air Force."

I quote from a paper called *Flight*, in its issue of the very day on which Mr. Baldwin made his speech in the House of Commons in favour of total air disarmament. *Flight* says:

"Where we join issue with the unspecified Ministers"—they turned out to be Mr. Baldwin—"mentioned above is in our absolute disbelief that bombing aircraft will ever disappear from war. . . . Let us suppose, however, that the infatuates have their own way at Geneva and forbid the possession of all bomber aircraft, or of aircraft above some fixed size. What would be the result? No single nation would believe that the rule would be kept for one moment in war, and therefore everyone would have to prepare to evade the prohibition as best he could."

It went on to say that inspection was fantastic and so on, and lastly, that air transport would suffer—a very strange conclusion.

I quote again from *Flight*. Speaking of Lord Londonderry's speech in Geneva, in which he said that abolition could only be carried through if it was made absolutely certain that the abuse of civil aviation was quite impossible—and they argued that of course such a condition could never be fulfilled from the nature of the case—they say:

" . . . we believe that Lord Londonderry's reduction of the problem (of internationalisation) to commonsense elements has rung the knell of these well-meant but fatuous suggestions for disbanding air forces."

Again they say a month later:

"In fact it seems to us that Lord Londonderry has said most politely to the Committee 'Do the impossible, and then we will disband our Royal Air Force.'"

Finally, *Flight* cites with great approval the fact that the Federation of British Industries had addressed a letter to the Prime Minister taking strong objection to the idea of internationalising civil flying, stating that such a step would endanger free development of Empire routes under British auspices—again a very strange conclusion to anybody who knew what actually happened in the discussions about civil aviation.

I now turn to another paper which I think more important than these, and which certainly deserves

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the attention of the Commission—I mean *The Aeroplane*. Here is a quotation from the issue of October 18th, 1933:

"If nothing had been said at Geneva about abolishing bombing and prohibiting air attack, and all that other nonsense, the ordinary Englishman would never have awakened to the fact that the Air Force was in danger. But all this talk by the pacifists . . . and all the correspondence in all the newspapers of the world about the iniquity of bombing and the horrors of gas attacks and all the rest of it, most of which is sheer foolishness anyhow, has made the British taxpayer think."

It will be remembered that it was Mr. Baldwin who started the talk.

The Aeroplane says in the same issue:

" . . . within the next few weeks the Disarmament Conference at Geneva will come to an end, and it will almost certainly end without any agreement to disarm—which will be the best end it could have. Man is by nature a predatory and combative animal. Taking away his weapons will not in the least stop him from fighting."

Six months later, in July, 1934, *The Aeroplane* says:

" . . . now that the disarmament talk at Geneva is nearly done, there may be some chance of building a still bigger framework for our own Air Force."

and they go on to say:

"And now that money is easier we can afford to re-arm the whole Air Force every four or five years."

They add:

"Moreover, if the Technical Departments be properly reorganised rearmament will be much cheaper, because cheaper methods of production, which, all the same, will leave a fair margin of profit to British aircraft constructors, will follow in natural sequence."

Then in the course of that month, July, Mr. Baldwin announced the construction of 41 new squadrons; but *The Aeroplane* was still by no manner of means content. It said:

"There is no security in such a statement, either for the British Empire or for the Royal Air Force or for the British Aircraft Industry—on which last the ultimate safety of the Empire depends."

Now I come to the second question: Why is it that these papers take this line? *The Aeroplane* has explained it. It did so in an article written by the editor on January 17th, 1934, and he answers the question, which he says has been put to him by some of his readers—Why does he give so much space to international politics and all this stuff about the League of Nations?—by giving certain reasons why it is very important to him to do so. He then goes on to say:

"Moreover, if you consider the lowest possible motives, the influence of mere commerce, the greatest amount of trade done by the British Aircraft Industry, on which the existence of this paper depends, is done either with the Air Ministry, in supplying materials for the Royal Air Force, or with the governments of foreign nations in war machines."

In other words, but for the trade in war machines for our own and foreign governments, that paper, *The Aeroplane*, could not live; and I submit that if the Commission examine the files of these papers which I have cited, they will see that they have such a large number of advertisements from aircraft companies that the editor of *The Aeroplane* is very certainly right in saying that without those advertisements they would not be able to carry on.

In that connection I would like to call the attention of the Commission to an advertisement which

appeared in *The Aeroplane* on the 18th July, 1934. Unfortunately, I could not this morning put my hand on the issue and I have not brought it with me, but I can easily obtain it and send it if the Commission desire to see it. It contains an advertisement which consists principally of a picture of an important type of British fighting aeroplane or, rather, bomber, I believe it was. It was on the 18th July, 1934—that is to say, while we were still contesting the right of Germany to have an air force, nine months before we agreed to the League of Nations resolution denouncing Germany for having re-armed in violation of her international obligations—in July, 1934, a few days before Mr. Baldwin announced the creation of the 41 new squadrons which were required to meet the German air menace. This advertisement, this picture of a British military machine, was decorated with a swastika.

Now I would like to urge on the Commission that this business of a technical press which depends on an industry is an inevitable result of private manufacture, and is very unfortunate. The importance of advertisements I will just illustrate again by one more quotation from a very recent issue of *The Aeroplane*, namely, 23rd October, 1935, in which they urge that the aircraft industry shall make sure that their products are well represented in a special issue of *The Aeroplane* which is to deal with the British aircraft industry. They say:

" . . . we know that the most important officials in every firm in the aircraft industry read their *Aeroplane* regularly . . . even those firms which cannot deliver orders for foreign countries"—because they are so busy at home—"will do well to make as good a show as they can in our Special Issue, because if they cannot sell machines abroad this year that is all the greater reason for keeping their names well in front of foreign governments and foreign buyers generally. . . ."

I submit that the writing of these journals constitutes a paradox which needs investigation.

Now, Sir John, I turn to the Patriotic Societies. There are a number of them, some of them permanent, some of them mostly scientific, some of them, so far as I can make out, temporary—I do not attach very much importance to them—but none of them in favour, so far as I can discover in my investigations, of international solutions of this air problem which has so greatly exercised our own Government and the other great governments of the world. They almost all seem to be more or less actively and vigorously against disarmament and international co-operation in matters in the air, which is the more remarkable in view of the international character of aviation and in view of the actual camaraderie of those who fly, to whatever nation they may belong. There may be a perfectly straightforward explanation of all the facts that I lay before the Commission. I make no charges of corruption. I am perfectly certain that all the individuals concerned are inspired by motives of the highest patriotism, and that they sincerely believe that they are serving the highest interests of the country. If there is a straightforward explanation I hope that the Commission will call witnesses and have it.

I start with a statement made by a friend of mine who is a pilot, who happened to tell me these experiences, and from whom, therefore, I requested a written statement which I could read to the Commission. I am not going to declare the name in public here—I will give it to the Chairman if he so desires—the reason for not giving the name being that my friend desires to have a career as a commercial pilot, and the Commission will understand that that might be compromised if the name were known. Here is the statement:

"In February, 1934, I called at the office of the Air League of the British Empire, 19, Berkeley

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Street, to inquire about the aims and objects of the League and its members. In the course of conversation I said to the man who was interviewing me: What about the other Societies, like the Royal Aeronautical Society; are you in competition with each other or do you all work together? He answered: Well, as a matter of fact, there used to be a good deal of jealousy and rivalry, 'but now, in face of the common enemy Disarmament, we are all as thick as thieves.'"

1354. *Chairman:* Who is supposed to have said that?

Mr. Noel Baker: An official in the office of the Air League. I am afraid I do not know the status of the official. Perhaps I could find out, but I do not actually know.

I would like to say one word about the pre-war organisation which was, I suppose, the original parent of the Patriotic Air Societies, the National Aerial Defence Association, as it was called. Of course, it had not a very long existence, but among the members of its executive committee there were three people who were connected with armament firms, and the chairman was not only chairman of the Association but was also the chairman of an aircraft production company.

I pass on to another organisation of which the Commission will probably have heard in one way or another, namely, the Hands Off Britain Air Defence League, which has an office at St. Stephen's House, Westminster. That appeared—at least it came to public knowledge; I follow these matters rather closely and I never heard of it before—in the early part of 1934, and its principal activity at that time was to circulate this pamphlet *England Awake!* I expect a number of members of the Commission received it. It was very widely distributed throughout this city and, indeed, throughout the country. Knowing something of these things, I doubt whether the distribution which it received could have been carried out for less than a sum of some hundreds of pounds at the least. This organisation also held a large public meeting in the Kingsway Hall, which was addressed by a number of important people. I believe Mr. P. J. Hannon actually took the chair. This pamphlet gives in a number of points a very vivid description of the terrible perils of England from air disarmament. I will not recite them; they are the platitudes of pacifist propaganda. They say that a bomber can leave the Continent with two tons of explosives and drop bombs a thousand miles away; he can leave Berlin—Germany becomes very much the enemy—at 4 o'clock and reach London at 8, and wipe out the heart of the Empire in a few moments. It goes on to say that "*our main aircraft factories are clustered round London*" and so on, and it ends with an appeal to "*create a new winged army of long-range British bombers to smash the foreign hornets in their nests*," and then with a final appeal to join the Hands Off Britain Air Defence League. Well, moved by that appeal a friend of mine endeavoured to join the Hands Off Britain Air Defence League, and wrote to St. Stephen's House and received the following reply, having inquired, I should say, what were the terms of membership and what subscription should be sent: "*I thank you for your letter, and I have much pleasure in sending you a leaflet in connection with our campaign. Please do not trouble to subscribe anything, but if you can get up a meeting locally it will indeed be a great help.*" Now there may be a perfectly innocent explanation of the fact that this organisation does not want subscriptions for its propaganda. If so, I think it is desirable that the Commission should find it out, and of course it would be very easily able to secure information, because this letter was signed by another Member of Parliament, Commander Locker Lampson.

I pass on to the Air League of the British Empire. I do not want to say anything that is unjust. I

have a great regard, a personal regard, for a number of people who have been concerned with the Air League of the British Empire, with not only those whose patriotism but whose personal integrity I am fully familiar, and who, as I say, command my fullest possible respect; but, as I say, nevertheless, that the part played by the Air League in the last twelve years has been very unfortunate. I quote from a statement of the objects of the Air League, contained in their Bulletin of December, 1923. These objects include the following:

"The maintenance of a Home Defence Air Force equal to any other Air Force within striking distance of our country; the maintenance of an Air Force capable of obtaining the mastery of the air wherever it may be called upon to operate"

—a very large order—and thirdly,

"the establishment of a thriving aircraft industry."

Now, from the very early stages the aircraft manufacturers have played an important part in the Air League. This was criticised in the House of Commons, and in reply to that criticism the Secretary of the League wrote in April, 1926, as follows:

"That the names of well-known men, some of whom may be possibly interested directly or indirectly in aviation from a manufacturing point of view, appears in the list of personnel of the League is only natural. It has always been the object of the Air League to secure the valuable advice of such men, and the League consider themselves fortunate. . . ."

and so on. And, of course, the manufacturers themselves are a little conscious of the difficulty of their position. Mr. Fairey, speaking at an Air League lunch in 1926, said: "*It follows that when an aircraft manufacturer expresses any opinion on the subject of aerial defence he lays himself open to the charge that the aircraft industry are very interested parties.*" Nevertheless, Mr. Fairey went on to give his views on the subject of disarmament, and very strange views they were, for he said that, of course, "*Disarmament in fact is not negotiated—it is dictated by the strongest power. Once we have the strongest air force we shall be able to call a halt in competition*"—etcetera—a view which was hardly borne out by the results of the Disarmament Conference, where France, the strongest air power, tried very hard to get air disarmament, and failed signally to get it.

I have said in my Statement that there is evidence of a financial connection between the private manufacturers and the Air League. I rely principally upon one extract from *The Times* newspaper, which I propose to read. The extract is as follows. It is from *The Times* dated 14th January, 1927:

"The Air League of the British Empire has received an offer, on behalf of those interested in production, of £5,000 a year for two years under certain conditions, this sum to be used in organisation and propaganda. . . . The offer was originally made to the Chairman of a Committee of Inquiry set up last year to consider how best to strengthen the activities of the League in securing a proper recognition of the value of air power within the British Empire, and yesterday the Executive Committee of the Air League . . . resolved to recommend to the postponed annual general meeting that the offer of £5,000 per annum for two years, in accordance with the undertaking given by Mr. Handley Page in his letter to Lord Burnham of 17th December, 1926 . . . be accepted. . . . The Committee of Inquiry . . . was set up last July because it was felt that the Air League was not making the headway desired . . ."—and so on. "*It was a communication from this committee which put forward the proposal outlined above as a result of an offer made by*

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a person acting on behalf of those who were to provide the £10,000. It is understood that the financial offer made through the committee of inquiry contained a definite assurance that there would be no interference with policy on the part of those finding the £10,000, that the League's policy would be perfectly free and unfettered, and that no interference whatever, by the industries concerned, would be exercised in any manner."

I fully recognise that there was a guarantee of no interference in policy. At the same time, there was a definite offer of a very large sum of money for this body with the definite purpose of doing propaganda to secure a proper recognition of the value of air power, and that offer, as shown by subsequent newspaper extracts which are in my possession, was in fact accepted. One of those extracts, which professes, as I remember, to correct what is said here, says that the offer was £10,000 a year instead of £5,000. I do not know which is right; but it is the principle which matters.

1355. Mr. Spender: Whom was the offer by? I did not quite follow.

Mr. Noel Baker: It was made on behalf of those interested in production of aircraft, and the name of Mr. Handley Page is here cited: "in accordance with the undertaking given by Mr. Handley Page in his letter to Lord Burnham of 17th December, 1926."

I have always thought and believed that it was extraordinarily desirable that subscriptions to "Patriotic Societies" should be made public. President Hoover, in 1930, in dealing with the American Navy League, who had attacked the London Naval Treaty, said that Patriotic Societies ought to be like Caesar's wife, above suspicion; and if all their membership and all their subscriptions could be made public it would be, as I think, an extraordinarily advantageous thing. I would, for example, explain, or, rather, prevent the suspicions which come into my mind when I read the following in the Annual Report of the Air League, 1933-34—remember that is the year, again, when air disarmament was almost successful. The Report says that the

"excess of assets over liabilities of £263 at the 31st December, 1932, has increased in the succeeding twelve months to an excess of £1,275; this is very satisfactory in view of the greatly increased activities undertaken by the Air League. Subscriptions are approximately the same as in 1932, but the League has benefited by a number of generous donations."

Donations for the year ended 31st December, as shown in the accounts, totalled £1,561.

It may very well be that every one of those donations was from wholly disinterested people, but we ought to know it, and I think it also a fact worth mentioning that the Secretary-General of the Air League, who has been in charge of its affairs during the period of the Disarmament Conference, came to his office as Secretary-General from the post of director in Vickers Aviation, Ltd., and from another post as director in a company called Supermarine Aviation, Ltd.

Throughout all this period the Air League has been very active in promoting the cause of "air power". In 1926, when Sir Samuel Hoare and Lord Trenchard, I believe, were in charge of the Air Force, there was a special protest against the slowing down of the programme for the increase of the R.A.F. It says, as soon as that was known, "the Executive Committee took active steps in the matter and a Press campaign of protest was organised." They arranged a lunch for all the principal journals of the country, and got all the editors or air correspondents to come, and they urged on them that it was frightfully important to keep a large air force because the aeroplane industry depended upon the military orders. In July of 1926 the Bulletin said that the Executive Committee had given a great deal of attention to the distribution of

government orders for aircraft, "as the existing system did not enable the aircraft manufacturers to run their businesses on economical bases. A second committee was appointed to investigate this matter and the Executive Committee are glad to be able to report that the system of giving orders has undergone a change"—in other words, the Air League intervenes in matters which concern the interests of air manufacturers between the Government and the manufacturers, and does so officially, through its Executive Committee.

There are later examples—I am taking so long, Sir John, that I pass over those rather more hurriedly than I would otherwise have done—in which I could show that the Air League has taken a very deep interest in the general support given to the aircraft industry; it expresses anxiety that the Government are forcing contractors to take too low a price for their products, which is a rather strange attitude for an air patriotic society. Of course, they justify it by saying (and it may be a justification) that if the industry is to remain strong and capable of expansion in time of war, profits must be adequate during the fat years to enable it to carry on through the lean years.

The Air League, during the Disarmament Conference, took a very active part in the formation of opinion. It carried on a campaign in favour of air bombing at a time when it was proposed by many governments—and our own Government gave a very considerable measure of support to it within certain limits—that air bombing should be abolished. Here is a circular of June, 1933, showing a summary of newspaper articles and correspondence on the subject of air bombing which had appeared in the Press. It says that a certain number, a great proportion, were written or inspired by the Air League, and it ends: "The movement against air bombing and against military and naval aircraft shows no sign of slackening." Then, in March, 1934, rather later, they summarise their campaign. They say: "The Air League was able, through the medium of the Press and through lectures, to inform the public on the rights of the case from intimate knowledge, with the result that the great majority of the Press of this country admitted that this air control"—that is frontier bombing, of course—"was both humane and effective"; and they say again, reviewing what they have done by courtesy of the daily Press and reviews and so on, that more than 120,000 words from the Air League have been presented to millions of readers. Then, of course, there have been a lot of lectures, and so on, and there have been other arguments in favour of air warfare, making out that it is not worse than other warfare. Indeed, one argument makes out that air warfare would not be so bad as the street accidents in England in a single year. There is approval of a book by Mr. Yeats Brown in favour of the institution of war. There are a number of articles against international organisation. Perhaps I might read one: "... we are told by some that to love one's country is a crime from which wars spring, that we must sacrifice the love of our quiet meadows for some pallid dream of a drab regimented international state." It is a very strange conception that we should sacrifice our meadows to Geneva. "There are those among us... who count as nothing the liberties our forebears won; who take no pride in our glories and our achievements; who offer us a cold and intellectual federation, if their dispassioned reasonings should prove correct." That is an argument against international organisation. There are arguments against the organisation of an international air police force and against the internationalisation of civil aviation.

Now, Sir John, I have said that I think it would be desirable that membership of these organisations should be made public. A friend of mine in fact tried to find out what was the membership of the Air League, and wrote and asked—he happened to

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be a member—and the reply was that the lists were not published because of the nuisance of advertisers. I do not think that a very good objection, and I am a good deal puzzled by a circular which was sent round to members of the Air League only so recently as the 15th October of this year, signed by the Secretary-General:

"My attention has been drawn to the fact that a circular letter has been sent to Members of the Air League, as subscribers to 'Air Review,' by a firm of London tailors. So far as I know, there is only one list of our members outside this office, and it is possible that this list may have been responsible for the circularisation. If investigation proves this to have been the case, my Committee will take a very serious view of the matter, and in these circumstances you will understand my reluctance to comment at great length."

Now, I belong to a considerable number of associations who publish their lists—the Royal Institute of International Affairs, for example. I dare say that I receive some advertisements as a result—1356. *Chairman:* But why do you want their names published—simply because they do not take the same view, or what is it?

Mr. Noel Baker: No, Sir John; I am not making myself clear. Because I think that those who try to persuade the public opinion of this country in favour of armament increases in season and out of season, if I may so express it, but certainly at all times, ought not to have any connection with the industry by which those armed forces are to be produced; and I think it is desirable that the membership of such bodies—that everything to do with them—should be fully public and given to the world at large, not only their membership lists, but their subscription lists and their donation lists and all the rest; and I am hoping that this Commission will take evidence from these bodies. That is really why I have detained you so very long on the matter, because it has been known before, it has been proved, as I think, that Patriotic Societies in other countries have unduly stimulated an armament demand with most unfortunate results. President Hoover as good as said so in the case to which I have referred; and it has happened in other countries as well.

I have dwelt on it at this immense length because I do believe a searching inquiry into these bodies is in the interests of all concerned, including them themselves.

1357. *Professor Gutteridge:* May I intervene for a moment? Might I ask Mr. Noel Baker if he would define a "Patriotic Society"? I am not quite clear what he means by a Patriotic Society.

Mr. Noel Baker: Well, it is a very loose phrase, but they use it themselves. Perhaps I should be more precise—Societies which give special attention to national defence.

1358. *Professor Gutteridge:* I do not like your using the word "Patriotic" in that connotation. One might be a patriot without doing anything like that.

Mr. Noel Baker: I withdraw it. Of course, from my own point of view, I do not at all accept the use of the phrase; only it is very common in the literature of the organisations I am talking about.

In what I have said on all this, Sir John, I am making no personal charges. I believe in the integrity and the patriotism of all these individuals. Those of them whom I know I greatly respect. It is a question of system and of principle, and it is, I think, in the public interest and in their interest that they should be, as I have said, above suspicion, and that everything should be fully published. I hope, therefore, that the Commission may be able to make an inquiry into this aspect of the matter, and I think that that is particularly important at the present time, when there is a great armament expansion beginning, when contracts worth tens of millions, perhaps hundreds of millions over a period of years, are going to be given, when some of these

societies are raising special funds—I think I saw something in the Press the other day about a fund for one of them of £50,000—I think it is very important that the membership of such societies and the sources of their financial support should be entirely public.

I want to pass from that, Mr. Chairman, and to summarise what I have said. I believe that these forces did play a great part in educating the air interests, and particularly the pilots, to believe that disarmament and the League of Nations and international solutions of the air problem were all nonsense, that thereby they played a great part in defeating Mr. Baldwin's appeal to the young, because Mr. Baldwin, in his great speech, said that the matter would be decided by the young, and I think he obviously meant the young men who were pilots; and in so doing they did play a very large part in defeating air disarmament, which so nearly succeeded at the Disarmament Conference in the middle of 1933, with results which no one can foretell.

Now, Sir, I turn to the technical side of my Statement, by far the longer part, and I do not want to say very much about that, although I have made a lot of notes; but the Commission have read my Statement, and I do not think it is necessary for me to do more than summarise very briefly what I have written.

I have started by assuming that there are two hypotheses on which this matter must be considered—that of international anarchy and that of a real system of organised international disarmament and peace—and that perhaps the two different hypotheses would justify different recommendations by the Commission. In any case, I hope the Commission may take that point of view into consideration. I have gone on to argue that control as ordinarily understood—that is to say, a system of licensing and inspection—does not give adequate means of removing the evils which follow from private manufacture. How, for example, can the Board of Trade possibly tell, when it is giving a licence for a consignment of goods abroad, how the order for those goods was obtained? I do not see how control in that way is to deal with the matter at issue. I have given in the succeeding chapters, Chapter VII and onwards, a long analysis of the alleged advantages of the system of private manufacture. For example, I begin with competition and I have shown that by the nature of private manufacture there is very little international competition, because every manufacturing state always buys from its own people, and the manufacturing states constitute a very large percentage of the total world market; that there is very little competition at home, particularly in our country, where for the most part the different products required by the Services are produced by one firm only or by a small number of firms in very close relationship with each other. I have shown that in respect of a considerable number of arms and different kinds of ammunition there is no competition, even by national arsenals. I have shown that there is, as the Commission is well aware, a certain amount of international combination, and I have concluded that in fact competition is not an important factor in the armament industry, either nationally or internationally.

I have gone on to consider the question of prices, and the general burden of armament expenditure on the nation. I have had it said to me in private conversation with a person in a responsible position, who certainly believed what he said to me, that if private manufacture were abolished, it would add £10,000,000 a year to the National Budget. I believe that to be quite fantastic. I believe there is no justification for it on any ground. I believe the arguments used to support it are really based on illusions. So far as prices are concerned, there is a long experience to show that arsenal prices are not higher than private firms' prices, and even tend to be lower, and I have cited a memorandum which was put in to Senator Nye's Committee last year

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showing that in the U.S. Army's experience their government arsenals manufacture at an average level of 11 per cent. less than the private firms. There is an important offset which I can deal with in another connection, perhaps, if the Commission desires.

Then I have dealt with the advantages, urged so strongly here by Sir Eustace d'Eyncourt, of competition and the stimulus of private gain in promoting invention and improvements in design. Here I have argued that whatever may have been true before the War, even if the Government methods were, as used to be said, clogging to private individuals who wanted to make improvements before the War, that is not true now. I have submitted that for inventions and improvements in design you need four things: you need the man with the idea, the inventor, who may be inside or outside the armament industry, the worker in the armament industry who thinks of some improvement in the thing he is working on; you need, secondly, large-scale research; you need experiment and test; you need liaison with repair work and with actual testing in the field; and you need some incentive to make people want to make the progress. Now, I believe that under a system of government monopoly, the man with the idea would go to the government, precisely as he goes to the private firm to-day, if he had the idea. An inventor is like that; he will do so. I have argued that research and experiment and testing must be better done by government than it can conceivably be done by any private firm, because the government spend such immense sums of money on it, something like a million pounds a year at the present time. I have argued that so far as liaison with repair work and field experience is concerned, the government arsenal must again, in the nature of things, be in a stronger position than the private concern. As regards incentive, I have argued that inventors do not always get the rewards of their invention, even under the present system, but nevertheless the government does now make rewards to people for inventions that are brought to it which total at least £30,000 a year in a recent year, and those rewards could be made more generous if the government desired to make greater progress; and secondly, that the real incentive now is not money at all: the real incentive is differential military advantage against the foreigner, that is what Sir Eustace d'Eyncourt called the Derby race in armaments in which every nation tries to be ahead.

Now everybody in our country is imbued with that incentive at the present time. If you were to put design in the hands of government officials only, officials of the Services—and it is principally in their hands at the present time—you would not have stagnation, you would not have the lapse of incentive, because that incentive exists in the strongest possible form; and, indeed, to say that there would be stagnation, that you would have no incentive and that the people would not try to improve, is to my mind to go very near to insulting the honour of officers and servants of the State who have very high qualifications and hold very responsible positions.

In connection with that, I want to emphasise another point which I have referred to here, namely, that in connection with this incentive of getting differential military advantage for your own country out of an invention, the Government is in a far better position by the nature of things than a private firm, because if the Government gets something really good it wants to keep it to itself, but if the private manufacturer gets something really good he wants to sell it to foreign countries as well as to his own, and for all the reasons explained by Admiral Lord Wester Wemyss. I take one example. Sir Ernle Chatfield, the First Sea Lord, told us not very long ago that sea power was as important to us as ever, and that the battleship was the full back of the Navy, on whom our safety depended. Battleships depend on their armour. Sir Robert Hadfield has invented a new shell. It is called the relieved base

shell, and in an advertisement which appears in *Brassey's Naval Annual*—I have it here if the Commission would care to see it—there is a picture of the shell and written across it "*Hadfield's latest invention—Patented Relieved Base—has solved the problem of oblique attack on armour at modern battle ranges*"; and Sir Robert Hadfield said at the annual meeting of his shareholders: "*This new Hadfield shell undoubtedly represents the most efficient shell in the world. . . . This improvement has now removed the last outstanding difficulty in the attack of armour under modern conditions*". Now if ever there was a case in which it would have been in the interests of the British Government to keep an invention to itself, there was a case. It could very easily have been done, obviously, because it is not the kind of thing which would easily get known abroad. In fact, Sir Robert Hadfield's firm, pursuing its perfectly legitimate interests in present conditions, patented that shell in eight different countries.

I take one other example—I do not want to dilate upon it because Mr. McKinnon Wood said something about it—namely, the sale of aircraft to foreign countries. Our Government has spent very large sums in recent times in promoting research in aircraft. The Air Ministry have proclaimed in an official memorandum that it is because of that research and because of the partnership between the industry and the private firms that we are capturing foreign markets in such a remarkable degree and that our machines go abroad. Now I understand from a Press statement a little while ago—it may be wrong; I hope it is—that one of our very latest single-seater fighters, with a tremendously high performance, 231 miles per hour, 20,000 ft. in nine minutes—an almost inconceivable performance—the "*Gannet*" which was entered in the R.A.F. a few months before the Royal Review, has now been given to a foreign power under licence to be manufactured there. Now that is the kind of thing which constitutes, I think, a very strange paradox which requires explanation. Another firm which is supplying the R.A.F. to-day, I think, with single-seater fighters sells them to twenty foreign countries. It means that all the result of our invention, the result of our expenditure of public money, is at the benefit of any potential enemy that we have in the world to-day.

Now I submit that my conclusion in regard to design is certainly supported by the McKinnon Wood Committee's Report,* because they urge that design should be centralised in Government hands much more than it ever has been before.

I pass on to examine the alleged advantages of the export trade, and I show that in fact the export trade is much less than is normally believed, a smaller proportion of our total output, and that the export trade which we should lose if private manufacture were abolished would almost certainly not be more than about one-ninth of the total production of armaments in this country. I can substantiate those figures, if the Commission desire, in detail, and I have argued that the loss of one-ninth of production could very easily be made up if the Government so desired at a very low cost by keeping additional reserve plant in Government arsenals standing idle, if you like. It would be a little cost, but I think it would be offset by other economies; but whatever loss of total potential reserve capacity there would be could very easily be made up with trifling expense.

Now I will turn, if I may, leaving the question of expansion (my Chapter XII) on one side for the moment, to some of the difficulties I have dealt with. There is first the difficulty of definition. Everybody remembers how it was said at one time that even children's marbles could be used as ammunition, and that therefore you could not make a sound system of abolition, because it would not be known what it was you were going to abolish. In the same

* Cmd. 229, 1919.

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way one could reply that it is very easy to define armaments, because the armament firms have done it themselves: they have made agreements among themselves whereby certain companies are forbidden to make armaments except for those with whom they are in combination. I do not want to take that kind of line. I have argued here that there is a lot of confusion of thought on this subject of definition, that for the purposes for which most people want the abolition of private manufacture—namely, getting rid of the armament interest, which exercises an important influence in public affairs—you do not need a very elaborate definition at all. You merely need a declaration by the Government that it is not going to buy certain things, finished arms and component parts, if you like, which it lays down in a fixed list which it can settle for itself; and that it is not going to allow the export of those things. By that simple process you can, in fact, get rid of the vested interest which I think is dangerous.

A great deal of confusion has come into this subject, because in Geneva there was a lot of discussion of the abolition of private manufacture and the control of the private industry of armament manufacture as a supplementary guarantee for the observance of an international disarmament treaty; and people said: "If you are to make that guarantee effective you must prevent a disloyal state from piling up component parts and from keeping specialised armament machinery", and so on. Well, if you are to do that obviously you must have a very careful international definition of component parts and of specialised machinery, and you must have an inspection to ensure that those regulations are observed. Well, I submit in my evidence that even if you want to do that, even if you do reach the happy conclusion of a disarmament treaty and you do desire to control manufacture of armaments for that purpose, you can quite well do so, because the Allied Commissions in Germany after the War solved the problem in their definitions and their practice, and the guidance of a German law passed at their instigation will quite certainly solve the difficulties with which you would be faced.

In Chapter XIV I come to the difficulties involved in foreign trade if private manufacture were abolished, the alleged difficulties of the non-producing state, that it would be at the mercy of producing states, and so on, and I have shown that that may or may not be a sound objection, but it certainly is not one taken by the non-producing states themselves. It has been very largely used by states which manufacture armaments, but not by states which do not manufacture armaments. I think the case on that is quite conclusive. I have argued that the arguments about neutrality are mostly based on the conception that the League of Nations Covenant does not exist, and I have cited a memorandum issued by the Foreign Office in 1930, an official paper laid before Parliament, which concludes that between members of the League there can be no neutral rights because there can be no neutrals.

On the argument that inter-governmental trading would be open to grave objection, I have argued that some of the objections alleged there do already in a certain measure happen, but they happen under the cloak of the private firms, and that it is far easier for them to happen under the cloak of private firms than under government manufacture, that in fact the dangers envisaged would be much less if private manufacture were abolished than they are at the present time.

Lastly, in that chapter I have argued that if private manufacture were abolished throughout the world it would not lead, as is often said, to a great increase of government arsenals, the multiplication of sources of arms supply. I have argued that because, as I have shown, it is extremely difficult for non-industrial countries to have armament industries, and in fact private manufacturers have

already made great efforts to start private armament industries in practically every country where it can be done, and I have suggested that it may even be the case—I do not say that it definitely is—that if private manufacture were abolished there would be less likelihood of the multiplication of new sources of supply, because there would be less incentive, owing to the absence of the profit motive, to the setting up of new factories. Of course, all that turns on the view from which I start, that it is not the non-producing states who are worried about the abolition of private manufacture, that they do not mind, that they raise no objection to being dependent upon other governments; and so far as one can judge from what they have said and from their attitude in their discussions of the matter, they are quite ready to buy from governments.

On the nationalisation of the industry I have argued, as I said at the beginning, that this is really one of the simplest technical problems that a government could have to carry through. Compared with the nationalisation of the coal industry it would be child's play, for the reason that the Government already possesses national arsenals and factories and dockyards where practically all kinds of armaments are being made or have been made, and that they certainly possess the personnel and equipment to make any kind of armament whatever. I have argued that this would not make a great dislocation in the industry of the country. If it were simultaneous with a disarmament treaty, then there would be a big reduction of armaments, and those engaged in the private firms would be out of employment, but they will be in any case if disarmament is carried out. If you assume the same level of armaments, I imagine it to be absolutely certain that the Government would, or would not, as it found advantageous or otherwise, take over the plant, and would certainly take over the greater part of those they found efficient in the personnel—the managers, designers, experts, foremen and skilled workers.

I have further argued that the fluctuations of demand from time to time constitute a great difficulty for the armament industry. They make it very unsatisfactory for private manufacturers to be in it. No man in his senses could want to be in an industry which had an immense expansion for a few years, then the immense over-expansion of a war, and then a period of stagnation for 10 or 15 years, as has just happened. It is a very unhappy industry to be in in many ways. But I have argued that that risk of fluctuation is one which ought in the nature of things to fall on the government because it results from government policy, namely, the scale of armaments which is maintained, and therefore the difficulties of that ought to fall on the government, and that in fact under a system of government monopoly the difficulties due to that cause would probably be rather less than they are under the existing system.

I have summarised a great deal very briefly, Sir John, and I turn back to the question of the expansion of armaments. I regard this question of expansion as by far the most important argument that is used in favour of the retention of the present system. It is the argument which makes people say that the private firms are vital to our national defence. It is the argument which makes them accept all sorts of results which on other grounds they object to—the selling of secrets to foreign powers, the arming of potential enemies, the paying of higher prices, and so on. Those things are accepted because they believe that the more firms you have, the more centres of production you have, the greater must be your power to expand armament production when a crisis comes. It looks like a perfectly natural and self-evident proposition, and it is very persuasive to very many people, and I used to accept it almost without examination.

But if one thinks about the matter carefully, one is forced to the conclusion that the capacity of expansion at a time of crisis depends upon the armament plant which the country maintains in time

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of peace, and that that will depend firstly upon the amount of plant used in government production in time of peace for current annual needs, and, secondly, upon the amount of plant which the government chooses to maintain in idleness in time of peace. Now the private manufacturers do not maintain reserve plant in idleness in time of peace: it is paid for by the government. If any of the burden falls on them they complain about it. Perhaps occasionally some of the burden does fall upon them, but, broadly speaking, the government pays for it. Broadly speaking, therefore, under a system of government monopoly, the plant which exists for annual production and the reserve plant which exists in idleness at government expense will be the same, and the real question about expansion, therefore, is: Will your power of expansion be greater if that plant is in private hands or if it is in government hands? And that reduces itself, as I have suggested in a certain paragraph early in Chapter XII, to three questions: Do you think that a national arsenal would be able to expand less rapidly than a private firm? Secondly, do you think that a government arsenal would be less able to instruct the ordinary engineer outside, the average general engineering resources of the country, than a private firm? Thirdly, would a government arsenal or a government department be less well able rapidly and efficiently to make new factories in time of war than a private firm would be able to make them?

Those are the three questions. Now on all those questions, on grounds of theory and on grounds of experience, I venture to think that the advantage lies with government departments. The figures are very unsatisfactory. I do not think anybody could get better figures than I have produced in my Chapter XII. So far as they go they do show that government arsenals expanded at least as quickly as private firms in 1914. The Murray Committee of 1907 thought they were going to, and although, as the evidence shows, the Arsenal was not very well prepared for expansion, I think in fact the Murray Committee's prediction was borne out, and that they did expand at least as rapidly, if not more rapidly, than private firms. In the second place—

1359. *Chairman:* May I interrupt a moment? They did not have the same difficulties quite, did they, as the private firms?

Mr. Noel Baker: No; precisely, Sir John; and I am coming to that. Perhaps I may deal with it now, as you have raised the point. I think the firms have been treated very unfairly by a great number of their critics. People argue as though the private firms had been guilty of the utmost wickedness and rapacity in 1914. Well, I do not justify everything that the private firms did—very far from it—but their difficulties were enormous. No one in the government had told them what kind of expansion they were to expect. The War Office had not the slightest idea that there was going to be any such expansion. How could the private firms have had it? They had mostly been working for the Navy. The Navy did not have such an expansion, and did not require it. In the second place, about their prices, certainly the prices, as the *History of the Ministry of Munitions* shows, were fantastic; but what were the private firms asked to do? They were asked to invest an immense new capital in new factories; no one could tell them how long the War was going on; lots of people said it would be over by Christmas; Lord Kitchener said three years. What were they to do? They had to guess between the two. The private firms could not know how long it was going to last, and they knew the Government would not give them a single order after it stopped. They had to invest their shareholders' money and take a risk of getting it back before the War ended. Well, I think in those conditions it is extremely unfair, for the most part, to attack the private firms in the way they have been attacked, and my case against the way things were worked in 1914 is not against the private firms; I think many of them did

admirably from their own point of view, and certainly had a most miraculous record for armament output before the end of the War. They were greatly helped by government control after 1915, it is true. But my case is that the system was wrong, and, as you say, it was not their fault. Certainly it was not. It was because they had been asked, under the system, to do things which private firms could not possibly do. That is particularly true of this second matter which I am now going to deal with—the instruction of the ordinary engineering firms, the industrial mobilisation, as we now call it, of the general engineering resources of the country. That is the real reserve of manufacturing power, of armament output, as the McKinnon Wood Committee said in their Report. That is the real reserve, the vastly important reserve, and therefore that is the most important thing. Now in 1914, under the terms of the report of the Murray Committee, that task was entrusted to the private firms on the Admiralty and War Office lists, and they were given great advantages for carrying it out. I have a section summarising the way in which this experiment was tested, the length of time for which it was tried after there was the great public outcry about the privileges the firms were given, and so on; and yet they totally failed. They could not do it, firstly, because their method, which was the method of sub-contracting, completely broke down. It broke down for a number of reasons, of which one is of great interest, namely, that the profit motive was in conflict with the motive of patriotism. The worker did not want to go from the firm where he was, to an armament firm, to get an ordinary wage, when the armament firm was, as he thought, going to make an immense profit. The ordinary engineer did not want to take a sub-contract for a private firm which was going to make an immense profit on it when he would much rather have done it for the government itself. And it is true that the demand for the change came from the ordinary engineers themselves, who revolted against the system of restricting the expansion to the private firms, and I suggest for the information of the Commission a very interesting chapter in the biography of Mr. Crittall on this subject.

It was not only sub-contracting that failed. Sub-contracting was the method, and when it had failed there was not much hope that the private firms could mobilise the engineering industries of the country. But in addition to that, the mobilisation of the engineering resources of the country involved inherently doing a number of things which could only be done by government—mobilising the general resources of labour, securing the dilution of labour, making a pool of labour, making a pool of raw materials, making a pool of our machine tools, organising the distribution of the supply of machine tools, sub-dividing industrial processes in a very high degree so as to facilitate dilution of labour and a greater use of newly-invented machine tools, and the co-ordination of supply. In all those ways, which were vital to large-scale production, it was impossible for private firms to do what the situation demanded; and therefore I say—and I do not believe there is any government expert or anyone else who will contradict this—that no one would dream to-day of leaving industrial mobilisation in the hands of private firms, as it was left in 1914. Everybody would say: "Of course, we must have direct central organisation, as we had after 1915."

On the third question, the building of new factories which were required because neither existing arsenals nor existing private factories could supply the whole of the war needs, the success of national factories was so clear in its results that I do not say much about it—Dr. Addison talked about it at length. But I do recite a story of the Norton Metal Company from the *History of the Ministry of Munitions*, which I recommend to the attention of the Commission.

The broad general conclusion from that is that expansion in time of war will be carried out far

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better if the armament plant and the skilled personnel are in the hands of and under the control of government; that the cadre for securing the instruction of ordinary engineering firms will be far greater, and the preparation for using that cadre far better, if it is centralised in government hands; and that therefore this argument for expansion, which is the chief argument by which the system of private manufacture of armaments has been defended, falls to the ground.

As I have submitted, I hope not in conflict with the views of the Commission, on that point the findings of the McKinnon Wood Committee bear out my conclusion. Now I ask the Commission to note very particularly what I have said. I have not said that the McKinnon Wood Committee reported in favour of the system of government monopoly and against the system of private manufacture. I have not said that. They were not asked to report upon it and they did not. But I do say that their report shows that if you have to choose, as they had to choose in 1919 (at least in their view) between the maintenance of government arsenals and the maintenance of private firms, then it was to the interest of the nation to keep the government arsenals and let the private firms go. They said repeatedly in their report they thought these firms would disappear. They reached that conclusion particularly for two reasons, if their report is read with care, first that for progress in design it is essential that it should be centralised in government hands, second they show how it is essential for securing quick expansion in time of crisis that it should be in the hands of government arsenals. I submit, therefore, that authority bears out my contention that this major argument in favour of the present system falls to the ground, and I submit that the authority of the McKinnon Wood Committee is very high. I understand that Admiral Bacon is going to give evidence to-morrow. I should adhere to my view of his report even if he were to say that the report was in favour of private manufacture.

1359. *Chairman*: Well, that is quite candid!

Mr. Noel Baker: But I think if it is read in the light of the circumstances and with great care to balance one paragraph against another, and to see how the purpose emerges from the terms of reference onwards, the conclusion is really plain.

Well, Sir John, that ends what I want to say. I only add one final word. The Commission may have heard people say that the abolition of private manufacture is an immensely difficult thing to-day, especially when you propose to combine it with an elaborate national and international control of the trade, and so on. I would reply that it is an illusion to think that the "simpler" plans are easier to work in questions of armament. I have been engaged closely in armament discussions ever since 1921, and I have come to the very clear conclusion that although it sounds like a paradox, the more drastic solution is always in reality by far the simpler; that when you try to get a compromise or a half-solution which goes a little of the way, it does not create confidence and therefore in fact it will not work, probably will not even be accepted. It is the drastic solution that is likely to be accepted once you make the decision, and which will give the results when you have got it.

I would finally say that no one is so well aware as I am of the deficiencies of the private student for dealing with these complicated technical matters. I have tried to suggest lines of thought to the Commission which I hope they will be able to follow up, because I do think it is of extreme importance that policy ought not to be determined by arguments which are insufficiently examined, and which are, in fact, fallacious, in a matter which, as Mr. Baldwin so often says, may involve the life and death of western civilisation.

1360. *Chairman*: I would like to begin at the beginning, if I may—not at the beginning of your Statement, but at the beginning of my train of thought—

and the first question I want to be quite sure about is this. You do recognise in this Statement, do you not, that there is a legitimate use for armaments? For instance, in Chapter V, paragraph 22 you say: "*The purpose of national armaments in the modern world, as determined by international treaties, is to preserve peace and to secure the safety of national territories from invasion*". That is a legitimate purpose, and for that purpose, of course, it is necessary that the armaments should be produced somehow and somewhere?

Mr. Noel Baker: Yes. I have never been a unilateral disarmar. I think government rests on a certain measure of force.

1361. *Chairman*: Now, there are three possible systems under which the necessary armament may be produced. There is the system of production by government alone, government monopoly; there is the system of production by government in their arsenals and by permitted private manufacturers; and there is a third, the system of production by private manufacture alone. Now, I think we may rule out the third altogether, and we therefore have to consider the choice between the first and the second. Well, now, it is right, is it not, that in this Statement of yours you have drawn a distinction between production in time of war (and I would add great national emergency) and production in time of peace?

Mr. Noel Baker: Yes.

1362. *Chairman*: Now, am I right in saying that in time of war (and in time of great national emergency) what you suggest is to be found in three passages of your Statement to which I will refer you? The first is in paragraph 79, under head (c). It begins—and I will read it, if I may, because I think it is important—

"It is, on the contrary, assumed that the Government would, directly war broke out, carry through an industrial mobilisation of private industry, as it did during the last war. In so doing, it would no doubt take whatever measures might be required:

(i) To secure effective Government control of all armament production.

(ii) To limit the profits made by private manufacturers.

In other words, there is no suggestion that all armament production should be confined to Government Arsenals in time of war; on the contrary, the abolition of Private Manufacture in time of peace would not affect the fact that the general engineering industry of the country would furnish the same reserves of non-specialised plant as it would if the present system continued."

Then would you turn, please, to paragraph 113, at the end. You say:

"I will attempt to answer these questions in the light of British experience before and during the War. For this purpose I will base the discussion on the assumption—on which all my evidence is based—that in order to meet the needs of the nation in future war it would be necessary both to expand Government arsenals to their maximum capacity, and to bring into armament production the whole of private industry that is capable of making the necessary adaptations in its plant."

Now you see there, you confine your recommendation to the reserves of non-specialised plant, and that, I assume, means that you are assuming that there would be a government monopoly under which all specialised plant would be in the hands of the government; and in the event of war you are advocating this method of control which would cover the rest of the field; the government would have the specialised plant and the private firms would have the non-specialised plant; and in addition you further, in paragraph 193a, are advocating that the necessary preparation should be made beforehand to

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enable that control to be put in active operation as quickly and as efficiently as possible. But if you suggest or advocate, in the event of war, the adoption of this system of control to come into immediate operation, you would necessarily, would you not, advocate the necessary machinery being set up beforehand to enable that to be done as efficiently and as quickly and as effectively as possible?

Mr. Noel Baker: Yes.

1363. *Chairman*: That would mean a census of all the non-specialised plant and all the rest of it?

Mr. Noel Baker: Yes, Sir John. Broadly speaking, my point of view is this. I am in favour of an international treaty of disarmament if it can be obtained. If, under that system of disarmament, it was decided to abolish private manufacture and to prevent industrial mobilisation and to have an international inspection to see that industrial mobilisation was not carried out, I would be in favour of our country strongly observing that agreement; and I think, as the French think, that it is possible to argue—I do not go so far as the French do on that point—that it might be a serious guarantee against the danger of aggression. But if, as I am here assuming, we are considering our armament policy, as we do to-day, on the hypothesis of international anarchy, with no disarmament, then obviously you must have industrial mobilisation. If war occurs you will certainly have it. If you are going to have it, prepare it in time of peace. I believe that the machinery for preparing it in time of peace to-day, as Dr. Addison argued, would be virtually the system of the Ministry of Munitions in the last war, the same kind of organisation, whatever you might call it. I think that that is not open to the objection that exists against the system of private manufacture, because you are not creating a definite vested interest in the increase of armaments. Therefore I would not for my part care how far industrial mobilisation was carried so long as we go on in conditions of international anarchy. I would like to say perhaps one safeguarding word. My own view is that if war broke out, probably the right plan would be the conscription of private industry, not only the control that I have suggested here, but definite conscription. However, that is a different point, and it is not really relevant to what I say because the main point I wanted to put before the Commission was the desirability of not having private manufacture in time of peace.

1364. *Chairman*: Yes. Now we have got to deal with the problem in time of peace. You have dealt with what is to happen in the event of war. Now, the choice lies between government monopoly, and government manufacture in addition to private manufacture, or private manufacture in addition to government manufacture. Now, I find in paragraph 179 of your Statement, under head (c), that you say:

"The same point may perhaps usefully be re-stated in another way. Wherever it is possible profitably to create an armaments industry, the great private armament manufacturers of the world have already done so. Their task has been, of course, facilitated by the Governments of the world, for very many Governments accept the doctrine that the possession of an armaments industry is an important factor in national defence."

That means private armament industry, does it not? You are referring there to a private armament industry?

Mr. Noel Baker: No, Sir John, I meant an armaments industry, either government or private; that a good many governments do accept the view that if you can have an industry on your own soil, whether government or private, it is desirable to have an industry, because by having the output of arms on your own soil you make it easier for you to supply your troops in time of war.

1365. *Chairman*: I read that as your view that very many governments accept the doctrine that a private armament industry is an advantage.

Mr. Noel Baker: I am afraid that that was a clumsiness of my expression. I meant having the production of armaments on their own soil, whether in government arsenals or not. If I may add one word, I would cite the way in which the Polish industry was built up by Schneider, as stated at the end of that same paragraph. In fact, I believe it to be the case that the Polish Government have largely bought Schneider out and have nationalised their armaments industry to the extent of 60 or 70 per cent. I am afraid I have not got exact figures, but I think that is substantially right.

1366. *Chairman*: Very well; that clears up my difficulty about that. Now to go back to a point that you have already referred to, the objections to a private armament industry, that is on the first page of your Statement, and I think you emphasise there that really the argument against the industry is not strengthened by referring to these various objections individually; but your point is that your real objection to the industry is that it is founded on private profit?

Mr. Noel Baker: Yes.

1367. *Chairman*: Well, now, I want you to deal with what is a difficulty in my mind. Assume that private industry is abolished. It follows, does it not, that the manufacturers of arms will be the various governments?

Mr. Noel Baker: Yes.

1368. *Chairman*: And I think you express the opinion, when you are dealing with the smaller states and the non-manufacturing governments, that there is no reasonable probability that they will ever start manufacturing for themselves?

Mr. Noel Baker: Well, I said I think they will find it very difficult to do so. Most of them who can, have done it already.

1369. *Chairman*: Well, there is no reasonable probability that they will do it?

Mr. Noel Baker: No, I think probably not.

1370. *Chairman*: Very well; then it follows from that, that assuming the abolition of the private manufacture, the manufacturers of armaments will be the greater nations and the industrial nations?

Mr. Noel Baker: The industrial nations, yes.

1371. *Chairman*: The industrial nations. Now, do you eliminate from your consideration the fact that when the manufacture of armaments is in the hands of those industrial nations, some of them will consider it advisable to manufacture for a profit?

Mr. Noel Baker: Well, I think it unlikely that they would try to make much profit out of their customers.

1372. *Chairman*: Yes; but supposing they make any profit, are not the objections that you so strongly feel against private manufacture equally great against the profits made by government manufacture? What is the difference, except that the people who reap the advantage of the profit are a different class? In the one case they are the taxpayer, and in the other case they are the private shareholder?

Mr. Noel Baker: Well, I think the difference is fundamental. The private manufacturer of arms has no other interest in the matter except to make a profit. The government has immense interests in armament policy. It has the national security to consider, it has the level of taxation to consider. If it pushes up armaments abroad, as Lord Wester Wemyss argues, armaments at home will rise in corresponding scale. If it is actively promoting the sale of arms in other countries it always does, it must, mean a general rise in the level of armaments. That will mean a rise in their armament bill at home, and their taxpayers will very soon see that while they have been making, say, a £5,000,000 profit—and that would be enormous—on their sales abroad, they have to face a £25,000,000 rise in their armament bill at home. Well, that the public would never stand. I submit in my Statement that it would be desirable that this country should abolish private manufacture unilaterally, acting alone. I cannot conceive that we would do it without a national arms

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board to conduct sales, whether at home or abroad; that that would be conducted, in all its procedures, in the fullest possible publicity; and that public opinion would never tolerate our government trying to increase armament sales abroad. Now, if it is not abolished alone here, it would be abolished by international agreement and as part of a disarmament treaty, for quite certainly you will not get it done by international agreement without a disarmament treaty. In that case there will quite certainly be a system of inspection and control of the kind which was proposed in Geneva and very elaborately discussed. Under that inspection and control, this kind of manoeuvre of a government to try to increase its sales would certainly come to light absolutely at the beginning.

1373. *Chairman*: Yes; but you are assuming international agreement, are you not?

Mr. Noel Baker: Well, I do not think it will be generally abolished without. That is my point. Until you have a disarmament treaty you will not get general abolition; and therefore, if you put as a hypothesis general abolition, you are entitled to put as a hypothesis international control and inspection as well. Therefore I think that objection cannot arise, because the publicity will kill it. In other words, to summarise, I think the governments have an interest not to increase their profits, indeed a much more powerful interest to decrease their profits; and if they wanted to do it, they would not be allowed by public opinion in this country to do it if they were acting alone, or by international agreement if they were acting in concert with other governments.

1374. *Chairman*: Later in your Statement you use this expression, which appeals to me, that one has, in considering which of the two systems is to be adopted, to consider the "balance of advantage." In paragraph 38 you use the expression "the balance of advantage," and that is what one has to try and ascertain, is it not—the balance of advantage?

Mr. Noel Baker: Yes.

1375. *Chairman*: Now, in trying to arrive at that balance of advantage, there are three main matters which a government must take into consideration.

(Adjourned for a short time.)

1382. *Chairman*: Will you turn to your Chapter V? In paragraph 24 you say: "*But since such agreements have not yet been made, every Government feels itself obliged to apply in armament policy the principles of the system of international anarchy.*" That is the term you apply to the existing state of things. That is right, is it not?

Mr. Noel Baker: The existing state of things is a mixture between the League of Nations system and international anarchy; because the 57 governments, including many of the principal governments of the world, have accepted the Covenant and the Kellogg Pact, and therefore they are no longer living in the condition of international anarchy. They are bound by the provisions of those documents. Our own Government is never weary of asserting to the world that our policy must be based upon the principles of the Covenant and the Kellogg Pact, and I am sure they are translating the wishes of the people. But on armaments policy there are different considerations, because the provisions of the Covenant, which stipulate for the reduction of armaments to the lowest level consistent with national safety and international obligations, have not been fulfilled, and therefore so long as they are not fulfilled, and there is not that international limitation of armaments, governments are in effect in a condition of international anarchy so far as armaments are concerned; but that whereas in matters of declaring war or in action restraining war they are certainly bound by the provisions of the Covenant and the Kellogg Pact, and therefore not in a condition of international anarchy, with their actual preparations for

There is first the moral question. That has to be taken into account, has it not?

Mr. Noel Baker: Yes, I think it has.

1376. *Chairman*: Then the safety of the nation?

Mr. Noel Baker: Yes.

1377. *Chairman*: And the pocket of the nation?

Mr. Noel Baker: Yes.

1378. *Chairman*: Those are the three main questions to be taken into account, are they not, in arriving at the balance of advantage?

Mr. Noel Baker: Well, there is also the political importance, Sir John, of private manufacture. I argued that the political importance is greater than the moral importance. If it is true that the armaments interest is a factor which does obstruct the working of policies of peace, that must be so.

1379. *Chairman*: Yes. You have spoken about unilateral action by this country. Do you think that the abolition of private manufacture of armaments in this country would have any appreciable effect upon the amount of armaments produced in the world?

Mr. Noel Baker: No, I do not say that. I do not think in itself it would.

1380. *Chairman*: No; and therefore it would have no direct influence upon the question of peace or war, would it?

Mr. Noel Baker: Well, I think it would have had if it had been abolished ten years ago.

1381. *Chairman*: Yes; but now?

Mr. Noel Baker: Yes, even now, because I do not think that we have finished with disarmament discussions. I feel that it is quite certain that whatever government rules in this country, it will as Sir Samuel Hoare said in September in Geneva, take up the question again and try to get results; and therefore, so long as this political interest exists, and so long as there is a chance of disarmament at all, I think it is essential that we should try to get rid of private manufacture; but it is precisely for this reason, that we cannot know whether we are going to get disarmament or not, that I suggested that the Commission might make two sets of recommendations, one based on the hypothesis of international anarchy and the other based on the hypothesis of a system of international disarmament.

war, if it comes, they regard themselves as being in this condition. That is what I meant to say.

1383. *Chairman*: Then in paragraph 25, you say: "*So long as foreign policy is founded upon the expectation of war and the pursuit of military advantage in war, then the moral aspects of Private Manufacture will remain of secondary importance.*" That is carrying out what you said earlier in this Statement about the position until you arrive at the stage of international agreement. Is not that so?

Mr. Noel Baker: Yes.

1384. *Chairman*: I wish to read the end of that paragraph, because it seems to me to be important:

"In other words, the conditions of the two rival systems of international anarchy and organised collective peace and disarmament differ so fundamentally that it may clearly be possible that measures for dealing with Private Manufacture which ought to be adopted under the one system may be undesirable or impossible under the other."

When you say it ought to be adopted under the one system, you are referring to the system under which there has been some form of international agreement?

Mr. Noel Baker: Yes.

1385. *Chairman*: Then you go on:

"In the evidence which follows I propose to argue that even if His Majesty's Government are unable in the near future to secure an international treaty for the Reduction and Limitation of Armaments, including a stringent system of supervision

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and control, it will nevertheless be to the advantage of the nation that they should abolish Private Manufacture of armaments on British territory."

When you speak there of advantage to the nation, are you referring to the pecuniary advantage wholly or partly?

Mr. Noel Baker: I mean advantage of all kinds; I mean what you, Sir John, referred to earlier, the balance of advantage taking all the arguments on both sides.

1386. Chairman: Very well. Then you go on to say lower down:

"In other words, I submit that the Commission should consider the problem of armament manufacture on two hypotheses:

(a) That of a collective system of the kind which His Majesty's Government is endeavouring to create, including a Disarmament Treaty, full publicity for armaments, and international supervision and control; and

(b) The conditions of international anarchy upon which armament policy at the present time is in fact determined;

and that they should make recommendations for action by the Government appropriate to the differing conditions which these two hypotheses involve."

It is conceivable, is it not, that under present conditions some substantial time may elapse before hypothesis (a) becomes a reality?

Mr. Noel Baker: It certainly is.

1387. Chairman: That is what I wanted to ask you about that.

Mr. Noel Baker: With great respect, I do not think it ought to be abandoned. That is what I mean.

1388. Chairman: No, no. Then will you turn to paragraph 32. You refer there, and in other parts of your Statement, and insist upon the necessity, if there is any international agreement, that it must be an agreement controlling not only quantity, but quality?

Mr. Noel Baker: Yes.

1389. Chairman: That, of course, increases the difficulty of coming to an agreement, does it not?

Mr. Noel Baker: My judgment on the proceedings of the Disarmament Conference was that it would have been a good deal easier to come to a qualitative agreement than to a quantitative agreement. In fact, on a number of types of armaments a great many governments were agreed on abolition of that type—heavy capital ships, tanks, and so on—but when it came to numbers, when you had to allocate the respective strength of the different nations, this terrible question of ratio, then you really were face to face with a great difficulty. I think it could have been solved. There were some very important delegations at Geneva which took the view that it was easier, as I thought it was, to get agreement on the abolition of certain weapons, kinds of armaments, rather than on actual quantity. It was essential to have both, in my view, and I think that in the end, if the thing had succeeded, there would have been both.

1390. Chairman: Will you now turn to paragraph 38: "Quite apart from the question of interest, it is inconceivable that a government should take the responsibility of arming an aggressor or indulging in illicit trade." Is not that too sanguine a view? We are not only speaking of our own Government there, but of all the governments.

Mr. Noel Baker: I quoted a practical example, and I should like to say this, although it is a repetition. The Italian Government is now engaged in aggression, and the fact is that the Italian Government is not one of those that one would have expected to be most scrupulous in this matter. Yet in fact the Italian Government was extremely anxious to disclaim responsibility for the despatch of

armaments to Hungary which was discovered a little time ago, and did push off its responsibility on to private firms.

1391. Chairman: I do not want to refer to any government by name; but is it not too sanguine a view to assume that everyone is going to behave as we should behave?

Mr. Noel Baker: I think that the responsibility on a government definitely sending arms to an aggressor is one which no civilised government would in fact take. I adhere to that view, although it sounds very extreme. I speak after considerable experience of publicity on these matters in Geneva. I really think that the governments would hesitate very seriously before they violated their pledges under the Covenant and took responsibility for so doing.

1392. Chairman: In paragraph 44, heading (e), you make use of an expression which other witnesses have made use of, and which I do not understand. Where people speak of "vertical" as well as "horizontal" combination. What does that mean?

Mr. Noel Baker: I think that when firms work among themselves they call it horizontal—when firms making identical objects (that is to say, objects of immediate use; shall we say, machine guns or rifles) co-operate in fixing their prices or work together in other ways—and they call it vertical when firms which manufacture the steel from which rifles are made, and firms which make the component parts of rifles from that steel and the manufacturers of the rifles themselves, all join in the combination, so that it is all one concern from the raw material to the finished product.

1393. Chairman: In paragraph 11 you refer to Mr. Mulliner's diaries as having been published in *The Times* in 1910. Is that the material upon which you class him amongst the undesirables?

Mr. Noel Baker: There is a good deal of other material besides that which he supplied himself. There has been a good deal of correspondence on the matter. There were a great many articles in the Press at the time, and it was discussed a great deal in works written subsequently to the War.

1394. Chairman: Have you a copy of those diaries?

Mr. Noel Baker: I certainly have got extracts from them. A file of *The Times* would show it; I have seen them and I have read them.

1395. Professor Gutteridge: The diaries have never been published as such, have they? I was under the impression that he wrote articles for *The Times* and cited from diaries which he had kept. But I am not sure about that.

Mr. Noel Baker: I think that is right.

1396. Chairman: Now Chapter XII. When you are discussing the private manufacture of arms, the question you keep asking is: Will a government arsenal or a private factory expand the more quickly? But is not the question for consideration really this: Will the government arsenal, with the assistance of private factories, expand more quickly than the arsenal by itself? It does not help one to deal with an arsenal and a factory when you are considering the question as between an arsenal by itself and an arsenal plus factories, does it?

Mr. Noel Baker: I start from a given amount of plant in a government arsenal or a private factory, and it follows from the premise which I tried to put this morning that, given a certain armaments expenditure by our country, given a certain level of armaments, the amount of plant engaged in making armaments will be approximately the same whether it is in a private factory or whether it is in government arsenals, leaving out of account the £4,000,000 export of which I spoke, which is a very small matter—£11,000 a day—in output, and which can easily be dealt with by other means. Leaving that out, the amount of plant in a government arsenal will be the same, and must be the same, if you have the same

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armaments output, as it is if you have a system of private manufacture. Therefore the question you have to ask, if you are making comparative expansion the subject of your inquiry, is: With that given amount of plant, will the expansion be more rapid if that plant is in a government factory, or will it be more rapid if it is in private hands? The answer to that question, to my mind, does not turn on the ground of the comparative efficiency of national or of private production in general; it is different. In respect of things which are quite special to the armament industry and to military preparation a national arsenal has advantages for quick, rapid, immediate expansion; and I think myself it was shown in the War that the national arsenals were able to expand more and ask their workers to work longer hours and make greater sacrifices than the private firms were able to do, because there was not any question of private profit; it was directly for the benefit of the nation immediately, and so on. I think that for those reasons it was shown in the early stages of the War—and it is only the early stages I am dealing with there, the plant in existence when war begins—I think it was shown that a given quantity of plant will allow bigger expansion in government hands than in private hands. The question of the rest of private industry, the general engineering resources of the country, comes under my sub-paragraph (b) in paragraph 113; that is: Is a private firm better adapted than a government arsenal for carrying through what we now call industrial mobilisation?

1397. *Chairman*: You are speaking there, of course, of plant; but so long as the export of armaments is permissible you have to consider not only the plant, but the plant as part of the actual working factory, as it were—the man-power, and so on?

Mr. Noel Baker: I admit that there would be a diminution of skilled man-power and expert management engaged in making that £4,000,000 worth, supposing we lose it all. I do not necessarily accept the view that the non-producing states would not buy from a government arsenal here; I think it is very likely they would. Assume, however, that we do not want it in any case, that you have that loss of £4,000,000, there would be a certain diminution in the number of skilled workers and skilled management engaged in armaments production; but I believe, when you come to the expansion question and examine it closely, that that loss would be more than offset by the greater efficiency of the government in instructing the non-specialised industries in armament manufacture; in other words, that the cadre of the government factories would be larger owing to the fact of having a government monopoly, and that the increase in that cadre of people who could carry through the industrial mobilisation would more than offset the loss of the skilled personnel engaged in making the £4,000,000, the one-ninth, which goes for export.

1398. *Chairman*: With regard to your reference to the McKinnon Wood Report at the end of Chapter XII of your Statement, what materials have you upon which you founded your view of the McKinnon Wood Report; had you this evidence as well as the Report, or only the Report?

Mr. Noel Baker: I only had those extracts from the evidence which have been published by Dr. Gilbert Slater in 1922, in a pamphlet called *War or Peace*. I may say that I made great efforts to get the evidence because I thought it must have been published, but I have never succeeded, and I understand now that it has not been published; but Dr. Slater did quote important extracts from it, and it is from him that I have re-quoted them. I think I have indicated that in the footnotes.

1399. *Chairman*: You see, in your paragraph 149 you draw an inference about what the Committee intended, although they did not say so in words: "If

they chose to recommend that Woolwich should continue, and be given work, they were in reality proposing that the other sources of production should be closed down, unless by express reservation they made it plain that means should be found to keep these other sources in existence." Of course, it is a question of inference, but I have read the Report and I have read the evidence, such as there is, and the inference I have drawn is that they were directing their attention mainly to Woolwich, and they definitely decided that Woolwich was to go on and be increased and improved; but that the expectation at that time was that the amount of armaments (using the word generally) to be manufactured would be so small in the future that the private firms would die of inertia, and that that is all they were referring to. But you do not take that view?

Mr. Noel Baker: No.

1400. *Chairman*: You have not seen the evidence?

Mr. Noel Baker: No, I have not seen the evidence; I have only seen those extracts; but I do not think I differ substantially from their view. I have the Report here in my hand, and it starts with the heading which I quoted: "*Armament production after the War; Government Arsenal and Private Factories*", and when they say as you have just said, that there is only a limited demand and it will be a very small demand. They go on to say that for that small amount it will be necessary to have some source of production, and that "*therefore a factory or factories either owned by the Government or private trade will be required for this purpose*." Then they say that the arguments in favour of the retention of a government arsenal in peace-time are overwhelming, and they proceed to cite the arguments:

"Assuming, therefore, that a Government factory is kept in existence, and that the supply of armaments is greatly reduced in quantity, it more or less follows that the present outlay of the larger private firms for armament production will be considerably reduced, and such manufacture will not improbably disappear as a speciality. It is also probable that the country will insist on the production of all armaments being confined to Government factories; nor would the disappearance of the larger armament firms materially handicap production in the event of a serious war."

My submission is this: that, having considered the whole case for all the sources of supply which then existed—the pre-war government arsenals, the pre-war private firms, the new national factories built during the War, the firms which grew up during the War—this Committee decided in favour of the pre-war government arsenals, having to make a choice, thereby deliberately leaving out private manufacture; and they did so although one witness who came before them—Sir F. R. Bingham, a member of the Munitions Council—I cite this in paragraph 152a—had definitely proposed that private firms should be kept in existence by means of subsidy; he recognised that they could not live on their own merits, and he wanted to subsidise them. I think it very striking that, whereas the policy of the Government when war broke out was that of the Murray Committee, namely, to increase orders to private firms as much as you could and to cut the government arsenals down to the absolute minimum—so much so that an immense reduction was made in the years between 1907 and 1914 with regard to orders to government arsenals while the orders to private firms were enormously increased—after the War, in 1918-1919, these men, who had had this immense experience of armaments production, rejected this proposal of subsidies for private firms; they ruled it clean out, although they thought it meant the disappearance of the private firms. They did not say that private manufacture was wrong, or inefficient, or anything else. I only argue that they said it was not important for the expansion of armaments production at the beginning of a war, nor for the purpose of promoting progress in

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design—the two main arguments which are alleged in favour of the present system, and which I understand have been alleged before this Commission. They rejected those arguments and said it was essential to keep the government arsenals in existence for that purpose; not only for that purpose, but that every effort should be made to give as big orders as possible to Woolwich for that reason, including all sorts of things which Woolwich had not made; for instance, mechanical transport for the armed forces; even, I think, marine engines for warships. So that my submission is that the McKinnon Wood Committee, with its immense authority, rejected the argument that private manufacture is essential for progress, design and expansion, and that it said that the continuance of government manufacture was essential. That is all I say; I do not go beyond that.

1401. *Chairman*: There is only the evidence of Major-General the Hon. Sir F. R. Bingham, who gave evidence before that Committee, and this occurs in the note of his evidence, because the only record there is, apparently, of the evidence, is some notes which were taken by the secretary in shorthand and reproduced. The General, amongst other things, recommended that some of the armament firms should be maintained, possibly by means of a subsidy, in a state of readiness to produce munitions immediately a war was imminent, and that, with the exception of one or two, national factories should be closed down and left dormant, their machinery being stored. That piece of evidence gives rise to this statement in the secretary's record: "*The Committee discussed these questions, and the views were expressed (a) that the annual estimates for munitions after the war would be so comparatively infinitesimal that the armament firms should not be expected to keep going on munitions work, and that future Parliaments in all probability would not permit of subsidies being granted.*" It seems to me that the Report has reproduced, in other words, that opinion of the Committee. But there it must rest; you do not agree; that is all.

Mr. Noel Baker: If I may add this. I continue, in paragraph 152a, by saying that if the Committee had thought the existence of private firms to be important for the expansion of armaments production they would surely have recommended—Parliament might have rejected it—a system of subsidies for private firms. It would have been their immediate duty. I cannot conceive that a Committee called on to report in the very gravest conditions at the end of the War would not have made such a recommendation.

1402. *Professor Gutteridge*: May I put a question on this? I think that one of the reasons why they did not recommend the continuation of the private firms as a source of armaments supply was because they pointed out that there was such a large reserve of what they called trained labour in the country, men trained in making munitions, that it was no longer necessary to have private firms for the purpose of training these men. I think that was another point which they stressed?

Mr. Noel Baker: Yes.

1403. *Professor Gutteridge*: In other words, the conditions were rather abnormal just at that moment.

Mr. Noel Baker: That is quite true; and, of course, I admit that in that sense that diminishes the purport of their conclusion.

1404. *Professor Gutteridge*: It lessens the cogency of it.

Mr. Noel Baker: I would submit this in reply: The amount of trained labour in times of peace is going to depend, like the amount of plant, on armament production, and that will not differ whether the production is under government monopoly or under private firms, except for that amount of export, the problematical £4,000,000. Otherwise, it does not differ; it is the same; it depends on the armament policy. If you have a disarmament treaty it would be reduced whether you have a government monopoly or private firms.

1405. *Dame Rachel Crowdy*: I have several questions that I want to ask Mr. Baker, some very minor ones on small paragraphs in his Statement, and one or two major ones; but before I ask them I would like on my own account as a member of the Commission to thank Mr. Baker for sharing his knowledge (gained from a very wide field and from a vast experience) with this Commission. I think we have all been struck, not only with the interest of the document, but also with the extraordinary sincerity with which Mr. Baker has put forward his arguments and, I may say, his convictions as well, even if we do not necessarily agree with him all the time.

In paragraph 8 there is a short sentence which says: "*But no evidence is ever offered for the view that such big firms or combines make less effort to increase their armament business than they make to increase their other kinds of business.*" I imagine that Mr. Baker wants to drive in by that sentence the point which he made at the very beginning—that he has no grouse whatever against the private manufacturers, but merely looks on them as good business men who have to push their business, who have to advertise adequately and have to create markets. That is your point, is it not?

Mr. Noel Baker: That is my point.

1406. *Dame Rachel Crowdy*: And I imagine you think that if we got government monopoly instead of private manufacture one thing which would certainly disappear, for diplomatic reasons, would be touting for orders. I cannot imagine one government daring at a moment of diplomatic crisis to tout in another country. I think that is your point there, is it not?

Mr. Noel Baker: Yes, it is indeed. The pre-occupation of every manufacturer is not to have idle plant. If he has a large plant standing doing nothing, and no workers there, and it is deteriorating, it is intolerable to him, if he is a good business man; and if you read the writings and speeches of armament manufacturers, as I do, you see that with perfect sincerity they go on harping continually on this point, that they cannot have idle plant. On the one hand, we say it is essential to government policy that we must have idle plant in order that we can expand armament production when war happens, and, on the other hand, these unfortunate manufacturers have the plant on their hands, and, although they get subsidies for it or put the cost of it on the price that they charge for armaments, nevertheless it remains a great distress to them. And that is inherent in the system. If there is idle plant it ought to be in the hands of the government.

1407. *Dame Rachel Crowdy*: Then in paragraph 10 you say under (c): "*There is one known example of the despatch of a warship, at the request of a private firm, on a special voyage to give a demonstration of artillery to the agents of a Government which was the potential client of that firm.*" That is presumably the Turkish case which we have had quoted before?

Mr. Noel Baker: Yes—the Driggs gun. Perhaps I might add that there was a proposal through either the Air League or the aircraft manufacturers—I do not remember which—that a British aircraft carrier should be sent to South America for the same purpose, to advertise British aircraft. It was, according to the evidence which I saw on the matter, considered for some time, but ultimately turned down.

1408. *Dame Rachel Crowdy*: Then under (f) in the same paragraph you say: "*Diplomatic support is given by the Embassies and Legations of virtually all arms-producing Powers to the agents of their private firms when they are seeking orders; on occasion this support is extremely active.*" Do you mean to say that you think the Embassies and Legations give greater support to the agents of armament firms than they do to the agents, say, of biscuit firms or stocking firms, or whatever it may be?

Mr. Noel Baker: The answer, frankly, is Yes, and for this reason. Some Departments of State, who exercise great influence in these matters, believe that every additional order for a British armament firm

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is an additional guarantee to the security of the country. They want to expand armaments production to the utmost possible extent, and they regard expanded armaments production as greater safety. Therefore they do bring greater pressure to bear with regard to armaments than they do with regard to other things. I could give examples of when that happened in very unfortunate circumstances.

1409. *Dame Rachel Crowdy*: Could you give any examples which you are free to give and which would be of interest to this Commission?

Mr. Noel Baker: I recall the fact that the Foreign Secretary admitted in the House of Commons that support was given; he said it is never given for a firm which is trying to increase orders which foreign governments do not want to give, but only in order that a British firm shall get an order if it is going instead to a foreign firm. I think that is a distinction which in practice is extremely difficult to make. That is a matter which requires a great deal of investigation before you can accept the distinction at its face value. I have actually been in a Balkan capital when the firms of two countries were competing for an armaments order. I have had a close personal friend in one of the Legations who told me over a period of weeks about the vicissitudes of the contest for a submarine order, and he said that one day we were winning and another day we were losing, and so on. I could give the Chairman names and references in private. It was a very striking experience, and I have heard of other people who have had similar experiences.

Dame Rachel Crowdy: I think it would be very interesting, Mr. Chairman, to have those references.

1410. *Professor Gutteridge*: Might I ask whether one of them was a British Legation?

Mr. Noel Baker: In fact it was.

Professor Gutteridge: If that is so, I think perhaps we ought to have it; but if it was between two foreign Legations I do not think it would concern us.

1411. *Dame Rachel Crowdy*: To come now to a rather bigger question. I wonder whether you could enlarge a little on the relative efficiency as you see it of private manufacture and government monopoly, and whether perhaps you could enlarge rather more on Chapter VII onwards, which you touched on very lightly this morning—the question of private manufacture, and the arguments which are put forward in favour of private manufacture. But first, could you give us some further elucidation on the relative efficiency, as you see it, of the two systems?

Mr. Noel Baker: It is a very large question, but I agree with *Dame Rachel Crowdy* in thinking it is one of very great importance; because, of course, if it were shown that government arsenals were in fact from a technical point of view a great deal less efficient than private firms it would affect the argument about prices; it would affect the argument about expansion; it would affect the argument about a number of the so-called concrete advantages of the present system.

I desire to make no hard and fast statement on the subject, certainly not on the general efficiency of government production as compared with private production, but I would offer these observations: In the first place, if there was more inefficiency in government plant than in private plant we should have heard a great deal about it from the private firms. There is very little about government plant that is not known to the private firms and many other people concerned in armaments production; they know everything, or they know a great deal. If there were inefficiency it would certainly get out and would be talked about a great deal. There are many people who would see to that.

In the second place, as I have observed in my Statement, all repair work is sent, as I understand it, to government establishments to be done. It is well known that in all branches of industrial activity it is extraordinarily easy to waste money on repair work; there is nothing which requires so high a standard of efficiency as repair work; and that is certainly not less true of armaments than of other things. Therefore it is an important fact that Mr. Amery said in the House of Commons in 1923, I think, when he was First Lord of Admiralty, that the government send their repair work to the arsenals and dockyards because they do it for less money, because they are more efficient, in other words. There are a great many other independent testimonies that I could cite; I am speaking from memory; there was an article by a man who calls himself "Sentinel" in *Brassey's Naval Annual*. He is a man of very high standing and of great knowledge; otherwise he would not be allowed to write in *Brassey* and he would not speak in the way he does unless he was a man of very high standing. "Sentinel" says that our Royal dockyards are magnificently efficient and they have not got their equal in the world. In the next place, I would submit a little specialised evidence which comes into my head. I happen to have contact with one or two firms which made munitions during the War, and I had a little correspondence with them on a few of the technical points which arose, and I remember one letter in which the chairman of a company said to me that he had found out a way, with the Ministry of Munitions' advice and assistance, of making a gun-bolt in one-third of the time which was taken by the establishment which had previously made them—I think it was Vickers or Armstrongs; it was one of the two; I am not sure which. He said it was not an isolated example; he had found that his firm and other private firms, too, were more efficient than the armament firms.

I need not remind the Commission of the minutes of the meeting—I cite them here somewhere, and they were also cited by Dr. Addison in his evidence. I quote this in paragraph 58: "... a Committee held at the Ministry of Munitions on 24th January, 1916. The members of the Committee were:

Mr. S. H. Lever,
Hon. N. Charles Rothschild,
Mr. John Mann,
Mr. Frederick Palmer.

Paragraph 9 of the Minutes reads as follows:

9. *Conclusion re armament firms.*—The only conclusion that can be reached at present is that:

(a) . . .

(b) . . .

(c) *The organisation and management of their works are inferior to those of other shell manufacturers.*"

In 1916 the other shell manufacturers were the government arsenals and such few firms as by that time had been brought into shell production—they were very few by the end of 1915 and the beginning of 1916. I am speaking on the spur of the moment, but I suggest there may be a reason for it, and I think that perhaps the reason is this: that government arsenals are subject to a very stringent control by the Departments and by Parliament, and the standard of investigation and inspection of expenses, efficiency and prices, and that kind of thing, is very stringent. Therefore it would not take long for inefficiency to be found out and for punishment to be meted out. But in private firms, certainly before the War, and still more to-day perhaps, since there is no competition, broadly speaking, and with these orders they earn very high rates of dividend, they let themselves get into bad ways. I remember an incident, which I have cited here, which was given by Dr. Addison, of a member of the staff of Hadfield who complained that the Ministry of Munitions cut down

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profits, because, he said, "Before the War we used to be allowed lots of contracts which gave us 25 per cent., which in reality was 33 per cent., profit." Probably in these conditions they allow their business to become rather inefficient. I do not wish to say more than this as a general conclusion; I certainly have no information which would justify me in doing so; but I am sure there is no proved case for thinking that the arsenals are less efficient than the private firms; on the contrary, so far as I have been able to assemble it, the evidence is the other way.

1412. *Dame Rachel Crowdy*: That leads me to another question. Do you feel, supposing we do not have the international agreement that we hope for, that we could abolish private manufacture in England before other countries do, and do you think that the abolition of private manufacture by us would be a reason for other countries to imitate us? I do not mean a reason in theory; I mean something in fact. Do you think other countries would follow our lead if we abolished private manufacture, and if we did it alone?

Mr. Noel Baker: Yes. I think, as I have said, that on the balance of advantage it would benefit a nation to do it alone, whether anyone else did it or not; and that in efficiency, in expansion in time of war, in progress and design, and in various other ways, that we could actually get military advantage. But apart from that—and this is to my mind more important—we should in our country get rid of what I have called the armaments interest from our public life. I have tried to show in my remarks this morning that the armaments interest, without anything which you could call corruption, may nevertheless have a disastrous effect on the course of public policy, and to get rid of that would, I think, be an immense advantage to our own country.

With regard to your question whether, if we were to abolish private manufacture in this country unilaterally, our example would have any effect on other countries, I think myself that it might have a most important effect in strengthening the hands of those people in other countries who want to abolish private manufacture; and there are many.

The Commission may remember that the Daladier Government (of which I spoke this morning) made proposals in the autumn of 1933 for the support of certain parties in the Chamber of the French Parliament which contained a promise to abolish private manufacture. The other parties in fact refused that proposal and the Daladier Government fell from power; but if the proposal had been accepted there would have been a majority for carrying through the abolition of private manufacture in France. I believe that if our country did that it would tend to make those people who have a majority in the French Chamber do the same. I think it would immensely strengthen the people in Belgium who want to nationalise their armaments industry. I think that, in the way these things work, it would in fact make it more probable. It might have no direct effect but certainly it would be an important factor in mobilising the opinion from which an international agreement follows.

1413. *Dame Rachel Crowdy*: It is rather outside the question in a way, but, remembering that particular time when, according to your statement, the French so very nearly pulled off the abolition of private manufacture, do you feel that if they had succeeded in bringing about the abolition it would have encouraged us as well as other countries to do the same?

Mr. Noel Baker: It would have been a very powerful argument for people like me, who try to persuade the country that it is a good thing to do. 1414. *Dame Rachel Crowdy*: The only other thing I really wanted to ask you was this: Can you develop a little for me the scheme for international control of commercial aviation? It is not really very

relevant, perhaps, to our inquiry, but you make a great deal of it in your Statement, and it is interesting from the point of view that presumably international control of commercial aviation might develop into international control of military aviation in the case of crisis.

Mr. Noel Baker: Yes.

1415. *Dame Rachel Crowdy*: Supposing such an international government control had been in existence at the time of Japan's withdrawal from the League of Nations, would she not have withdrawn her pilots as she withdrew her nationals from the International Secretariat? Would not Germany have done the same thing and what would have been the effect? Will you clear this point up for me?

Mr. Noel Baker: You have asked me two very big questions, one of which relates to commercial and civil aviation and international control. The other relates to what is ordinarily spoken of as an international police force, which I will develop later.

With regard to commercial aviation, the different committees in Geneva during the Disarmament Conference, and a number of preparatory committees before the Conference, met and discussed in great detail various plans for international control of civil aviation. Some of them went very far; some of them less far; but all, I think, were founded on the basic idea that under existing conditions aviation suffers from appalling handicaps, and must so suffer. The commodity which aviation has to sell is speed, and speed depends upon being able to make long journeys without interruption, or with a minimum of interruption. The relative speed of aircraft and railways over any distance, shall we say, within the British Isles is not very much different; you can get to Newcastle by train very nearly as quickly as you can by aeroplane, because the aerodromes have to be a long way outside the cities. The difference is not very much; but the difference over a long journey—say from England to Tokio—is immense. Scott has flown from here to Australia in less than three days, whereas a steamer takes six weeks or more. That is a tremendous difference. If you could free commercial aviation from the restrictions which now hamper it you would be able to have an expansion of the inter-continental services which would stagger the imagination, and I believe it would be practical politics.

The national restrictions which now exist are best illustrated by the experience of a number of British companies in trying to arrange routes to other parts of the Empire. They have tried to arrange routes, for instance, to South Africa. To-day, if you want to go to South Africa, you still have to get into an aeroplane at Croydon and fly to Paris, and then in Paris you get into a sleeping car and go to Brindisi, and you lose 38 hours and make a number of changes and waste a lot of time; whereas if you had a proper international regime in which the national restrictions were done away with you would, of course, make the journey right through to South Africa without any interruption.

A scheme was laid before one of these committees, and I remember being told by Senator de Brouckere, a very high authority on this matter, that in his view, in the way in which they had worked it out, the scheme was absolutely watertight for the organisation of a new transport service for Europe which would collect mails at 7 p.m. in any capital in Europe and deliver them in any other capital in Europe at 7 a.m. the next morning; from Helsingfors to Athens, from Moscow to Madrid, and so on. But, of course, that actually depends on having a completely international organisation, international airways with beacons, international aerodromes and stations worked on a co-ordinated system. This was a number of years ago, and things have changed. The extra cost would have been half the transport charge of an ordinary foreign letter. The transport charge is about 1d.; the rest is administrative; so that it would have been an addition of about 3d.—

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from 24d. to 3d.—on your foreign letter. You could have had that mail service for Europe, and it could have been done three or four years ago.

If you translated it into terms of international traffic, with stations, ground services, meteorological services, and so on, you would have an immense expansion; but this internationalisation is usually thought of as being a very damaging thing. Our present commercial aviation is on a very modest scale, and our own people are the first to admit it. We count our commercial planes in tens, the French in hundreds, and the Americans almost in thousands. Of course, we are very far behind, and we must be until what is called internationalisation is carried through.

Perhaps I may say that one of my points, which Dame Rachel Crowdy raised, about the merging of firms into large combines, is rather illustrated by this: that the aircraft manufacturers actually persuaded the Federation of British Industries, which, of course, is not a combine but an association of employers—it persuaded them to make a protest against internationalisation because it would damage British commercial aviation, when I think the slightest examination of the facts would really convince anyone of good faith that the thing is completely the other way.

I pass on to the question of an international police force. That, of course, was debated in Geneva at very great length, and a number of schemes were put forward, either for a completely international police force or for a series of national contingents trained together. The organisation of an international force involves difficult problems, as does the organisation of an international civil service. That has been solved in the Secretariat of the League of Nations, and the French, who urged this scheme very strongly, used to urge that the problems for the most part were identical with the problems of an international civil service, and that, since the one had been solved, the other could be, too. It was said that at a moment of crisis the Germans or the Japanese might try to withdraw their contingents; but others pointed out that the League could stop that; it could keep them in confinement and not allow them to go back; but if it did not, they would only be a very small part of the whole. No one country could possibly have a contingent which would outnumber the rest. My own conclusion from the debates I heard there was that the technical problems of an international air police force could easily be overcome.

1416. *Dame Rachel Crowdy*: You do not see any danger of international control of aviation providing a military weapon for the hands of some powerful member of the League—I ask this because an expert told me the other day that any civil plane could be quickly and easily converted to a bombing plane?

Mr. Noel Baker: I think that is true. It is right to say that Colonel Moore-Brabazon, who I think was the first man to fly in this country, takes the view that once civil aviation was de-militarised, or, as he says, has the mark of Cain taken off it, then immediately the divergence between civil and military types would become tremendous. I think I am not misrepresenting him in saying that in his view the difference would be as great as the difference between a merchant-man and a man-of-war to-day. He says the divergence would be very great. Apart from that, the argument used seems to me to be not a very convincing one, because those planes are going to be put under international control; that is to say, under the orders of an international board or under a series of national companies organised on an international basis—including, of course, international inspection and control.

1417. *Dame Rachel Crowdy*: International government inspection and control, not international business control?

Mr. Noel Baker: No; a League of Nations control.

1418. *Dame Rachel Crowdy*: I see.

Mr. Noel Baker: And inspection. They might be national companies, but there would be effective measures taken to see that they were internationally controlled. I think myself that the further you go in the direction of making it international—if you internationalise the panel of pilots and internationalise the board which controls them—the more likely you are to get national security for all concerned, because the less likely you make it that any government would be able to seize a group of those pilots or machines and use them for aggression.

I would commend to your attention a paper (and, as I think, a very valuable paper) written by Air Commodore Fellowes, who led the Everest Aircraft Expedition, and who has made a special study of this matter. He has urged very strongly the internationalisation of commercial aviation and has actually propounded a plan. I think that carries great weight, because he held a position of high responsibility in the Air Ministry in connection with civil aviation in times gone by.

1419. *Sir Kenneth Lee*: Did I understand you to say in reply to Dame Rachel Crowdy that you thought that if the private manufacture of arms was abolished there would be no competition for orders between governments?

Mr. Noel Baker: I think it extremely unlikely that governments would go touting for orders. I, perhaps, ought to repeat an explanation which I gave this morning: that if we abolished unilaterally—and that is what I am hoping will be the main recommendation of your Commission—we should then have the problem of whether our Government would go touting for orders. We certainly should not realise this aim unless we had a national armaments board to which all commercial inquiries would be required to be sent. That would operate in full publicity, and I am quite certain our public opinion and our Parliament would prevent touting for orders. If it goes beyond that, if there is general abolition by international agreement, there will certainly also be, in my view, a system of international inspection and control of the whole armament industry, of all factories where armaments are made; because I do not believe for one moment that the one part, the abolition, would be accepted without the other, namely, the inspection and control of government factories, and international publicity for all armament transactions and trade of every kind. I think that would exclude touting for orders.

1420. *Sir Kenneth Lee*: But surely each government would be very anxious to supply the people whom they thought were their friends with the arms which they were using themselves, in order to protect their friends?

Mr. Noel Baker: I think it very likely that their General Staffs would urge that, as they do to-day, and I think very likely the General Staffs of the allied countries, if they went on having alliances, would insist on arms coming from the country which was their ally and which was a producing country.

1421. *Sir Kenneth Lee*: Would not that lead to touting?

Mr. Noel Baker: I do not think so. I do not see why. I think definitely that the pressure which comes from the profit motive would be excluded. I do not think that the governments will be moved by the profit motive. I will not repeat what I said this morning on that subject.

1422. *Sir Kenneth Lee*: I should have thought it would have meant that competition would still exist for orders?

Mr. Noel Baker: If competition does exist then it means the position of the smaller states is

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not one of danger or difficulty, because they can always move over from one to another. I certainly do not think there would ever be a ring of producing states. That I am sure is an hypothesis which can be excluded. At the same time I do not think there would be competition in the sense of trying to push up armament orders. There are other countries which are pretty well civilised, too. Most industrial countries have a rather high standard of civilisation, though some of them may be passing through difficult times at the moment, and they would see that their interest is not really to increase armaments, because Lord Wester Wemyss's fundamental proposition remains true that if you increase your export you are increasing the armaments of some other power, and if you do that their neighbours increase theirs. It goes like a ripple across the pond; the armament level rises and you get a general increase which was not otherwise going to happen. You push up the whole level of armaments; that pushes up your own expenditure and quite certainly your taxpayers lose, and the government has to provide a budget which will be far greater than any profit you can make on the armament transaction itself.

1423. *Mr. Spender*: You feel fairly convinced that governments would resist the temptation to which they now succumb of supplying armaments in return for political favours or promises?

Mr. Noel Baker: I think it would be far more difficult for them to do it. Now they can do it under the cover of the private firms; but if they had to come to Parliament with all these matters it would be far harder for them to do it.

1424. *Mr. Spender*: You do not think it would be necessary to take the further step of prohibiting loans from governments to their protégés?

Mr. Noel Baker: I think it would be a very desirable thing to do.

1425. *Mr. Spender*: You do not think that is possible, though, in the present state of opinion?

Mr. Noel Baker: It is difficult to say that you could get it agreed to everywhere, I quite agree.

1426. *Mr. Spender*: You quoted Lord Grey on naval competition. Lord Grey's point was that the armament competition expressed a conflict of political ideas and policy. Would not that be true?

Mr. Noel Baker: I think not quite. As I remember the passage—I have read it many, many times—it is the passage in which the sentence occurs which I quoted in my paper. There were between us and Germany many outstanding questions—and between the other countries in Europe—the question of colonies, and so on—and Lord Grey had tried to settle those matters; but it was not, in his judgment, his failure in that regard which made the War inevitable. On the contrary, it was the armament competition. I do not want to over-state it.

1427. *Mr. Spender*: I am not disputing that point; but I am only suggesting that he did not relate it at all to the question here of the private manufacture of armaments; I do not think it presented itself to him at that time?

Mr. Noel Baker: I do not think he mentioned it at all.

1428. *Mr. Spender*: It brings one to rather an important point: what are the real influences behind armaments. If I understood you, you seemed to say that the failure of the Disarmament Conference in the last two or three years had been to a considerable extent influenced by agitation by private manufacturers behind the scenes?

Mr. Noel Baker: Yes.

1429. *Mr. Spender*: When we have so many objections and glaring political policies for that failure, can you really attribute a very large influence to the machinations of sinister influence behind the scenes? It seems to me it is putting the thing rather out of perspective to put it in that way?

Mr. Noel Baker: Perhaps I might suggest the political influences were not really of a kind to make nations consider—

1430. *Mr. Spender*: The fear of Germany by France?

Mr. Noel Baker: In my view, there was no cause in the German situation which justified France in thinking—

1431. *Mr. Spender*: It is not a question of justifying; it is a question whether it was a motive?

Mr. Noel Baker:—which would have made the French public think that Germany was going to make another attack upon them in the early future, except for the work done over a period of 15 years from 1920 onwards by the armaments Press in France, which stated year by year over the whole of that time that Germany was continuously rearming, when in fact they were disarmed almost to the bone.

1432. *Mr. Spender*: But you would not suggest it needed that incitement to make the mass of French people have that fear?

Mr. Noel Baker: M. Briand thought so. He tried for a large number of years to work a policy of Franco-German reconciliation, and he got it, and he got the support of the French people for it; but he always said—in private I have heard him say it dozens of times—but he said it very emphatically in public: "The pens which write these articles are made of the same steel as the guns." It was his profound conviction that an immense influence in French politics against his policy of Franco-German reconciliation was the campaign of the armament firms to make the French people believe that the Germans were arming, when in fact they were not.

1433. *Mr. Spender*: No one would deny that that was a contributing factor; but I, too, have heard M. Briand. I heard him make the speech which he made at Washington, which had such a disastrous effect, but it was entirely on the opposite line. I do not want to carry that point very far, but it does lead us to another point: Would you by a state monopoly really relieve the pressure? You quoted the Comité des Forges, which is the chief controlling interest over the Press. That is the great iron and steel industry, is it not?

Mr. Noel Baker: Yes.

1434. *Mr. Spender*: It would have the same motive for pressing governments to increase armaments as it has at present, even if governments manufactured them?

Mr. Noel Baker: Not quite, I think.

1435. *Mr. Spender*: Very nearly?

Mr. Noel Baker: The very important element of profit made on the component parts and on the finished arms would be cut out. It would only be the raw steel.

1436. *Mr. Spender*: Still, that would be a great factor?

Mr. Noel Baker: I think, with great respect, it would be desirable also to establish government steel plants. I think that is very important. Certainly in respect of some kinds of armaments, for example, the large gun, I believe the cost of the raw steel is about half of the whole.

1437. *Mr. Spender*: You would not say the government for this purpose would have to go the whole length of providing the iron and steel—go to the mine?

Mr. Noel Baker: No; but I think a steel plant is one thing and a mine is another. I think a steel plant would certainly be justified on many grounds.

1438. *Mr. Spender*: Take another point. Shearer was not a nominee of armament firms; he was the nominee of the shipbuilding interests, was he not?

Mr. Noel Baker: They make cruisers.

1439. *Mr. Spender*: Yes.

Mr. Noel Baker: And guns and ammunition. Bethlehem and Newport News, I think, are just as much armament manufacturers as Armstrongs were before the War.

1440. *Mr. Spender*: Is not there another very important consideration? When you have these government arsenals will not you have a very important pressure brought to bear on behalf of the

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workers employed in the dockyards? Will not that be a constant pressure to keep up employment, and so armaments?

Mr. Noel Baker: I have examined the evidence on this question as well as I am able—and no private student can do it thoroughly, especially if he is a very busy man, as I am—but I have never found any evidence that dockyard workers have agitated for an increase in armaments. There was a great agitation at Woolwich before the War, which Dr. Slater had a great part in, against the discharges from Woolwich Arsenal in favour of the private firms. There was no agitation then in favour of an increase in armaments. I have never come across it. The city of Kiel, which has dockyards, elected a German socialist to Parliament, to the German Reichstag, who voted against the building of the German pocket-battleships. That meant his electors were without work and were unemployed. He went back at a new election and was elected again. Similarly Herr Liebknecht who exposed the evils of the armaments trade before the War, was elected by an armament making town, and was re-elected. There is ample evidence that the workers have not brought pressure to bear for the increase of armaments as such.

1441. *Mr. Spender:* I have known candidates for dockyard towns all my life, and I have heard their views, and they certainly would not favour a reduction in armaments.

Mr. Noel Baker: They want to get what orders there are, of course, and they scramble for them. I admit that; but I think the danger on that point has been very greatly overstated.

1442. *Mr. Spender:* One question with regard to the basis of expansion which is one of the things which is troubling me, looking at the possibilities. In establishing government arsenals, are you thinking of peace-time armies, or are you going to provide something corresponding to what the French and the Germans do for their big armies? Most of the defects which have been alleged in the case of the existing armament firms were that they were not ready for expansion, and therefore if you were going to remedy that in your government arsenals it would need, it seems to me, a very much larger expenditure and a very much larger holding of labour in reserve, and materials?

Mr. Noel Baker: I come back to the point that, in my view, the amount of plant which exists at any given moment is the amount required to make the annual total production, plus the amount of idle plant which the government chooses to pay for. That may be any amount you like, but there is no reason why under government monopoly it should not be exactly the same as it is under the present system, and I think it would cost the country no more.

1443. *Mr. Spender:* Except it is commonly stated to us that the armament firms can afford to keep that plant idle, or possibly occupied in other ways in the meantime, without any great cost, whereas the government arsenals would be under the necessity of keeping a large part of that plant idle. At the beginning of 1914, would it not be true to say that our great difficulty as compared with the French or the Germans was that we only started with the small arsenals appropriate to our small army whereas France and Germany had great arsenals and establishments appropriate to their big armies?

Mr. Noel Baker: If that were true, it would mean that our dependence on private firms had handicapped us, as I understand it; but the point that private firms are able to keep idle plant at the service of the nation is one on which it is very important to make a careful examination of the facts. And the facts are that the private firms do not keep idle plant standing for the service of the nation, because they cannot; they cannot afford it. They receive direct subsidies—I cite one here which I took out of Hansard—from the Government, when

there is no hope of the plant being used; and they receive indirect subsidies, undoubtedly, in the prices which they get for the products they produce. The prices are much higher than they would otherwise be. They get disguised subsidies of various kinds. For example, the monopoly of the I.C.I. in a number of products in this country is certainly a very important subsidy for which the British taxpayer indirectly has to pay. No doubt on the strength of that subsidy the I.C.I. can keep some idle plant, but the nation is paying. I think it would have to pay much less if that plant were kept in a government arsenal, because the actual cost of keeping idle plant in government establishments is less than keeping it in private factories.

That the private firms are content to keep idle plant is, I think, disproved by the speeches which the private manufacturers make themselves. I have read dozens of speeches protesting against the fact that the private manufacturers are expected to keep idle plant, and the speeches made by unhappy armament makers after the Washington Conference would fill a book, in which they said disarmament would ruin them, and so on. I will read only one speech which I have actually quoted in my Statement, in paragraph 192 (c), by Sir Robert Hadfield:

"It is doubly unfortunate that the cost of putting these theories (i.e., disarmament) into practice should fall in the main upon an industry which is already struggling against unfair economic conditions which are beyond its control. The politician is always ready with advice to turn over to peaceful products, not realising that highly specialised plant cannot be diverted in this way, and further, that the supply of those peaceful products already far exceeds the demand, so that such a remedy, even if practicable, would merely add to the difficulties of other sections of the trade."

In other words, he protests vigorously, as all of the other manufacturers protest, if the plant is idle, and they protest even although in fact they are receiving subsidies for it to do so.

1444. *Mr. Spender:* Does not that suggest that the Government is doing rather well out of the armament firms? They will always protest that they are being ruined; I am only putting it to you; I am not expressing any dogmatic opinion about it; it is only that the probabilities are that if the Government and the private firms can work together, especially with regard to labour, and having labour at their disposal, you might make a cheaper and more economical arrangement than if you had a wholly government staff. That leaves out of account all possibility of a great many other questions, such as control, and so forth.

Mr. Noel Baker: I would reply that if the Government are doing well with idle plant at the expense of the private manufacturers, then it is very unfair to the private manufacturers.

1445. *Mr. Spender:* The private manufacturers generally look after themselves, do they not?

Mr. Noel Baker: I think they do. I do not think that in fact the Government does do very well, because I think it has to put up with the complaints of the private manufacturer when his plant is idle and nevertheless pay him for the fact that it is idle. I think that the Government in fact loses both ways under this system, and I think it gets no advantage whatever; but if it does I think it is wrong, because this is a risk which follows from fluctuation in armament demands, and fluctuation in armament demands follows from government policy and it ought to be borne by the nation, and it would be borne by the nation, if the idle plant were kept in government arsenals.

1446. *Sir Philip Gibbs:* Do you think, if there were a limitation of arms, an international limitation, it would necessarily enforce a government monopoly of manufacture, or, at any rate, tend to produce such a government monopoly of manufacture?

Mr. Noel Baker: I think it would make the inducement to the private manufacturer less than

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it is to-day. His market is ostensibly limited by the disarmament treaty, and might be in fact limited. But as I have tried to suggest in Chapter IV, the private manufacturer would have a number of reasons for trying to evade the disarmament convention, and there are a number of ways in which he might possibly do so.

1447. *Sir Philip Gibbs*: I am now asking a question rather in favour of your argument, and it is this: If there were a drastic limitation of arms, it might be that it would not pay the private manufacturer, and therefore we should actually be faced with the necessity of some form of government monopoly. Would you agree with that?

Mr. Noel Baker: Oh, yes. I often wonder why people go on with the private manufacture of arms at all; it must be a most unsatisfactory industry, because of these immense fluctuations.

1448. *Sir Thomas Allen*: I want to ask you about one or two points, by way of elucidation, on the summary of your conclusions in Chapter XVII. I take it that in any change-over from private manufacture to national production you would not desire to place non-producing nations in any less advantageous position to meet their legitimate needs? May I put it in another way: Why should this nine per cent. which you spoke of just now be lost to us if private manufacturers were abolished; why should it be lost under a state monopoly?

Mr. Noel Baker: I think it probably would not be lost. In my view, the position of the non-producing states is well summarised in the passage of the memorandum prepared by the Danes and the Poles and other countries at the Disarmament Conference, in which they said definitely that the non-producing states derive no benefit from the system of private manufacture, and that the abolition of this system would therefore not modify the situation of the non-producing states in any way. That was a view expressed by a group of states which included Denmark, a non-producing nation, and included also, or at least it was supported in committee by, other non-producing states.

1449. *Sir Thomas Allen*: The Netherlands, for example, did raise objection to state monopoly on the ground of technical difficulties of state manufacture as being far greater for the small nations than for the large.

Mr. Noel Baker: At what date?

1450. *Sir Thomas Allen*: At the same time.

Mr. Noel Baker: I do not remember that. It may well be I have missed it in the records.

1451. *Sir Thomas Allen*: That was because of the geographical condition and disadvantage.

Mr. Noel Baker: It is very doubtful how far the Netherlands are a non-producing state. They produce a good lot of armaments for themselves.

1452. *Professor Gutteridge*: I was under the impression that Holland was not an armament-making country, but I was told that some of the German firms have established branches in Holland. I put that to a friend of mine, and he said, "You are quite wrong in saying that Holland is not an armament-making country; because a lot of German firms have established branches in Holland"; and he told me that he had bought things from Zeiss.

Mr. Noel Baker: And Krupps.

Professor Gutteridge: They both have branches in Holland?

1453. *Sir Thomas Allen*: Much stress has been laid upon the point as to the difficulty of armaments in peace-time. Do you see any reason why the state should not keep armament factories going in peace-time by producing peace-use commodities?

Mr. Noel Baker: No; I entirely agree with the suggestion that national arsenals might very well have alternative work in the form of peace-use commodities which are required by government departments and by the armed services. It has this particular advantage, that the services know over a long period of time ahead that there are certain commodities of which they want so much every year

whatever may happen, and probably largely expanded quantities in case of emergency or war. Those commodities could quite easily be built up in reserve in times of peace. If a war did not happen they would be waste—that is quite true—but if a war happened they would not be waste; you could then just turn over to armament production and you would have the stocks you needed of those things; and in my view it is something which a government department could do by way of keeping the plant employed which a private firm cannot do, because they cannot afford to build up stocks like that which are not being used.

1454. *Sir Thomas Allen*: You said just now, in reply to a question by the Chairman, that the real objection to private manufacture was founded on the question of profit. Do you see in the American plan any attempt at all to abolish profit?

Mr. Noel Baker: No, I do not. That is why I think all systems of control are much less adequate than a system of abolition. I do not say they would not produce satisfactory results; I do not say they ought not to be done if nothing else can be done; but I believe that, in dealing with what I have called the major evil, the political influence of the armaments interest, abolition is by far the most effective plan.

1455. *Sir Thomas Allen*: Are you visualising the American plan altering the present situation?

Mr. Noel Baker: Of course, if it were carried through *in toto* it would mean a great deal of publicity for the whole of the transactions of armament firms. It would mean that their orders had to be published before they were executed; the licence to them would be given international publicity, and international committees of control could go into the factory and see what was going on and see whether the work corresponded with the orders which had been reported to Geneva, and if there was any divergence the inspectors would no doubt find it out. It would mean that the private firms would be hampered a good deal in some regards; for example, in respect of illicit traffic, which is important in many ways in my view. The illicit traffic in the 19th century was thought to be immensely important. The British Army on the North-West Frontier still thinks this illicit traffic very important; but it would not deal with what I call the social and political evils—that is to say, it would not enable the government to know how an armament order had been got, whether there had been bribery or the incitement of one government against another, and so on.

1456. *Sir Thomas Allen*: In your Conclusion No. (10) you say:

"If Private Manufacture is not abolished, then as an alternative the following measures should be taken:

(a) 'Public Utility' control over private firms to limit the prices or profits;

(b) The establishment of a National Arms Board with a monopoly of the home and foreign marketing of arms."

Are you visualising two bodies here, or one?

Mr. Noel Baker: The first would not exactly be a body; it would be a regime which the private firms would have to accept. It would involve inspection of their books, calculation of the costs, calculation of the normal profit which ought to be allowed to them, and so on. I argue elsewhere that that is less likely to be advantageous to the government than actual government production. Probably the costs under such a system would be higher, but that is a different point. The point here is, I think, that that would be a kind of regime, and that when they had made their arms under that regime they would then be transferred to the National Arms Board, who on behalf of the nation would do the commercial transactions—would carry through the commercial transactions required.

1457. *Sir Thomas Allen*: I asked you that because I had in mind that when Dr. Addison was before us

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he was very insistent upon a single supply authority for all arms. He pointed out that the different services had been obtaining materials and machinery from firms at the same time, and it was very necessary that there should be a single authority.

Mr. Noel Baker: I am in entire agreement with that view. I did not stress it here because I thought Dr. Addison had put it with so much cogency and with so much greater authority than that which I can command.

1458. Sir Thomas Allen: Now with regard to civil and military aviation: you will agree that in the future both civil and military aviation will be very important matters. I think it was the Union of Democratic Control that said that the government should provide all the instruments of aviation. Is that your point: that, given state manufacture or state monopoly of war-time material, the state should deal with the civil side of aviation? Would you have them as a separate entity?

Mr. Noel Baker: Yes, certainly.

1459. Sir Thomas Allen: I have in mind the easy conversion of civil aeroplanes into armaments. You would still have a separate authority for the manufacture of civil aeroplanes and a separate authority of state monopoly for military aeroplanes?

Mr. Noel Baker: Yes. I think it might be advantageous to the nation to nationalise the whole aircraft industry; but that is a different point, and, I think, not strictly relevant to the terms of reference of this Commission. I think the question of the vested interest could be met by eliminating the private manufacturer of military machines, and I think that could be done, if we were acting alone in this country—unilateral abolition—by simply saying to the manufacturers: The government is going to buy no more military aircraft from you, and it is going to allow you to export no military aircraft to other countries. If there was a very suspicious increase in the machines of a civil type which were going to another country, and which might be organised for military purposes, if we had ground to suspect that, I think the government would find it out in no time and could penalise the company. I do not think there would be any substantial danger of evasion on that point.

1460. Sir Thomas Allen: I put that to you because I have in my mind the evidence of the Union of Democratic Control. They felt that this particular armament service should not be left to private enterprise at all.

Mr. Noel Baker: My own preference would be for the total nationalisation of the whole aviation industry, but I do not think it is essential to the purpose of this Commission.

1461. Professor Gutteridge: I have not many questions to ask you, but that is not out of disrespect to your admirable memorandum. There are, however, one or two things about which I should like to ask you, and the first is this: With regard to the question of neutrality at the present time, I think it is wrong to say, is it not, that the Covenant has abolished neutrality; surely it still exists, does it not?

Mr. Noel Baker: Not as between States which are members of the League.

1462. Professor Gutteridge: That is what I am not quite sure of. May I put this to you: For instance, you may, of course, have hostilities which are outside Article 16 of the Covenant because the dispute is between non-members—that is clear, is it not?—and also I suggest to you it is possible to have a dispute between two members which will in fact fall outside Article 16 of the Covenant merely because the League members cannot agree amongst themselves as to whether a breach of the Covenant has arisen or not; they meet at Geneva and they cannot agree as to whether the hostile states are at fault or not. Surely in that case the law of neutrality still applies as between members of the League, does it not?

Mr. Noel Baker: As regards the first question, it would not be as between members of the League.

1463. Professor Gutteridge: That goes without saying.

Mr. Noel Baker: Even between non-members, that comes under Article 17. It reads as follows:

In the event of a dispute between a Member of the League and a State which is not a Member of the League, or between States not Members of the League, the State or States not Members of the League shall be invited to accept the obligations of Membership in the League for the purposes of such dispute, upon such conditions as the Council may deem just. If such invitation is accepted, the provisions of Articles 12 to 16 inclusive shall be applied with such modifications as may be deemed necessary by the Council.

Upon such invitation being given the Council shall immediately institute an enquiry into the circumstances of the dispute and recommend such action as may seem best and most effectual in the circumstances.

If a State so invited shall refuse to accept the obligations of membership in the League for the purposes of such dispute, and shall resort to war against a Member of the League, the provisions of Article 16 shall be applicable as against the State taking such action.

If both parties to the dispute when so invited refuse to accept the obligations of membership in the League for the purposes of such dispute, the Council may take such measures and make such recommendations as will prevent hostilities and will result in the settlement of the dispute.

So that even in that case it seems to me there is a certain doubt as to whether neutrality in the old sense could be said to exist.

1464. Professor Gutteridge: I do not know whether there is much difference between us, because I agree with you that the Covenant, of course, must have had a fundamental effect upon the question of neutrality. I am not at all sure that your statements in paragraph 177 do not go rather too far. I should have thought that it was still possible to have cases in which an appeal to the old law of neutrality would be necessary.

Mr. Noel Baker: If I may say one word on the second case which you cite—where states cannot agree as to whether a violation of the Covenant has occurred, and the Covenant breaks down because there is no agreement between the members—I can only say in reply that Article 16 as it stands, which binds us and the other governments which belong to the League, does not make necessary any agreement on that point. Our obligation arises when in our judgment (assuming good faith, of course) a violation has taken place; in other words, our obligation arose the day Italy went into Abyssinia, quite irrespective of whether the other members of the League agreed that Italy had committed a violation or not. But of course if the vast majority of them said: "Nonsense! there was no aggression, and no one must help," then the whole League would break down. But otherwise we are under obligation to go ahead.

1465. Professor Gutteridge: If we tried to do anything we should be met by the law of neutrality. The offending state would then be entitled to say: "You must keep your hands off, because the international law of neutrality enjoins you to do so."

Mr. Noel Baker: I should like to think about that.

1466. Professor Gutteridge: It is rather controversial, I agree. I am only suggesting that the statement goes rather too far, both as regards the Covenant and, moreover, as regards the Kellogg Pact.

Mr. Noel Baker: I know something of the way in which that memorandum was drafted, and perhaps I may in camera tell you of the authority which there is behind the memorandum.

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[Continued.]

1467. *Professor Gutteridge*: I suggest that the Kellogg Pact does not necessarily do away with neutrality, because, as a matter of fact, if you get an offender against the Kellogg Pact he is entitled to say, "You must not interfere with me, because you are a neutral."

Mr. Noel Baker: I think, so far as the Kellogg Pact is concerned, what you can say is that Mr. Stimson said it ought to do away with neutrality. That was an *obiter dictum* by him when he was Secretary of State; but in practice what will matter, I think, is that the United States are going to follow their policy of stopping all munitions for belligerents, and I believe they are going to. If they do that, most of the arguments used on this point fall to the ground, because the argument used is that under the present system we can get an immense supply of munitions from America, which we would not be able to get if private manufacture were generally abolished.

1468. *Professor Gutteridge*: I think your view is that you can no longer in the future count upon large supplies of munitions from abroad?

Mr. Noel Baker: Certainly not from the United States; because I think their present neutrality resolutions are going to be made permanent, and they will not be allowed to export—unless they are interpreted in the sense which seemed likely a little while ago, when they might export to non-aggressor states.

1469. *Professor Gutteridge*: It seems to me that the question, if you approach this from the angle of national safety, is that it is more urgent and necessary than ever that our supply of munitions should be assured in time of war. One thing is troubling me: Supposing you have nothing but state arsenals in this country, and hostilities were to break out on a very large scale, as they did in 1914, you are going to have a period of very great danger, are you not, of perhaps weeks or months, because it will take some time for the trade to be ready to meet any requirements which are caused by the emergency; in other words, you might have a danger period of months if you relied solely on state arsenals? I do not know whether you would agree with that or not.

Mr. Noel Baker: I will try to restate my view on that, because it is really fundamental to the whole question. The plant which you have for armament production on the outbreak of war will be the plant that you have producing armaments in time of peace, and that will be the same whether the armaments are produced in government factories or in private factories, except for this problematical one-ninth.

1470. *Professor Gutteridge*: As I understand your thesis, you postulate that x amount of plant is required?

Mr. Noel Baker: Yes.

1471. *Professor Gutteridge*: And you say the result is the same whether nine-tenths of that is in state arsenals and one-tenth in private firms, or the other way round. You have always got your x , your constant factor?

Mr. Noel Baker: For the production of armaments?

1472. *Professor Gutteridge*: Yes. The point I was putting to you was not quite that. Does not it mean that you have to keep your reserve of plant, your machines, tools, jigs and gauges, and things that cannot be made very quickly, and so forth, at a very high level?

Mr. Noel Baker: I think not; I think no higher than you do in any other case, because your problem is to expand your actual plant which is in operation on the one hand, and that you can do just as well if it is in a government arsenal as you can if it is in a private factory.

1473. *Professor Gutteridge*: You are going to disperse a lot of skilled labour?

Mr. Noel Baker: If you are going to teach the general engineering industry to come into armament production you must disperse some skilled labour; you cannot do anything else. The armament firms failed in 1914 largely because they did not disperse skilled labour, because they tried to make other engineers produce parts which they did not know how to produce, and would not really give them the information they required, because they were afraid of making competitors for themselves. That is another inherent difficulty in using private firms as agents of industrial mobilisation, that they do not want to make competitors for themselves afterwards.

1474. *Professor Gutteridge*: Let me put it in this way: I think it is quite easy to keep a reserve supply of machines, for instance; you send a man round with an oil can every now and again, and so forth, and keep them in order; but I see very great difficulties about the question of labour, because if you close down all your armament firms, unless the government are prepared to keep a large staff of men idle or practically idle, you are faced on the outbreak of war with a very serious position. You have the McKinnon Wood Report. That Report points out that owing to the circumstances of the War from 1914 to 1919 an educated reserve was in hand. As I understand it, that educated reserve has now entirely disappeared?

Mr. Noel Baker: Just as you have x amount of plant, so you have x number of workers making a given article of armament.

1475. *Professor Gutteridge*: I agree; only is it not the fact that it is much more easy to employ your redundant workers in a private firm than it is in government arsenals?

Mr. Noel Baker: Sir Robert Hadfield says not in this quotation which I have read this afternoon.

1476. *Professor Gutteridge*: I thought he was referring to plant.

Mr. Noel Baker: He is.

1477. *Professor Gutteridge*: I am thinking of workers.

Mr. Noel Baker: It applies just the same.

1478. *Professor Gutteridge*: I am not sure that it does. Take a firm like Vickers; it is much easier for them to switch skilled men off, let us say, making gun fuses on to some other work, than it would be for the government arsenal. I still have an open mind on the point. It seems to me there is the possibility that that is what would happen.

Mr. Noel Baker: I believe that in fact the highly skilled workers are really engaged 100 per cent. of their time in armaments manufacture, or else they are out of work. I do not profess to have complete information on it, but that is my information so far as I have any.

1479. *Professor Gutteridge*: You have inquired into it.

Mr. Noel Baker: So far as private students can.

1480. *Professor Gutteridge*: I only wanted to know what your view was.

Mr. Noel Baker: My view, broadly speaking, is that the highly skilled people are kept on armaments work; otherwise they are probably doing nothing. On the other hand, there are people in other kinds of employment—Dr. Addison talked about them—who have a very high skill in their own lines—watchmakers, and so on—who can be turned over; so that there are reserves of skill in other ways; but, broadly speaking, I think that my proposition holds true in respect of labour as it does with regard to plant: that the man-power will be the man-power required for making armaments in time of peace, and you have to build on that basis. How can you best build? That is the problem. I believe that experience has shown that you can best build by having those men in government arsenals, because from a government arsenal they can operate much more effectively; they can make the jigs and gauges required; they can make

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[Continued.]

the drawings and specifications; and when they are ready they can go round and give instruction.

1481. *Professor Gutteridge*: I wanted to have your views because we shall no doubt be having further evidence on this question.

Mr. Noel Baker: My views are set forth in Chapter XVI.

1482. *Professor Gutteridge*: Except that you seem to confine yourself rather to plant. That is why I asked you to amplify them. I am not quite certain that competition is not of very great service to the country in some ways. May I mention one, in the case of shipbuilding? Where you have a British shipbuilding firm in competition with foreign firms for building a passenger liner, let us say, there is an amount of experience which they gain in that way which no dockyard could ever give anyone.

Mr. Noel Baker: Well, I do not think it is competition in respect of making armaments in any way.

1483. *Professor Gutteridge*: It depends on how you define "armaments," of course.

Mr. Noel Baker: Yes.

1484. *Professor Gutteridge*: I am not saying that. What I do say is this: It is conceivable that a British firm which is building ocean-going liners is in competition with foreign firms, and therefore getting to know all that is latest in the way of oil-driven engines, and so on, and they would probably be a rather more valuable asset to the country for the purpose of armaments than a person building warships.

Mr. Noel Baker: If I may suggest it, it would be perfectly possible for the government dockyards and for the Admiralty to keep in touch with the private firms and get any such information as they can get from competition.

1485. *Professor Gutteridge*: That would depend on the willingness of the private firms to volunteer the information.

Mr. Noel Baker: I should have thought that, as a matter of patriotic duty, they would be willing to do so. I do not think there is any ground for thinking that the manufacturers either of arms or anything else are not patriotic in that sense. I should have thought they would be more willing, since they will not be communicating it to any competitor who is making something that they are making themselves—only to the government, who would not enter into competition with the firms.

1486. *Chairman*: There are two more questions which I should like to ask you. You would agree, would you not, that from our point of view we have not got to consider the immediate future, but we have got to look ahead. Take this position: Supposing a period of 20 years' peace from now, and then an outbreak of war; one would have to contrast the position on the expiration of those 20 years of peace as between a government monopoly existing during those 20 years and government arsenals plus private firms allowed controlled export? That is the sort of matter that one has to consider. You would agree to that, would you not?

Mr. Noel Baker: Yes, certainly. I think, if I may say so, the Commission has to consider perhaps the immediate future, but quite certainly the further future. Whichever hypothesis is taken, my memorandum is designed to persuade you that

it is to our advantage definitely, on balance of considerations, that in any circumstances it is better to abolish.

1487. *Chairman*: One other question. I am not quite sure that I understood what you said to us in your address when you referred to so many extracts from the trade Press; because, given a trade of sufficient importance to warrant a trade Press, that trade Press exists for the purpose of commending the trade to all and sundry?

Mr. Noel Baker: Yes.

1488. *Chairman*: Supposing they act *bona fide*, I do not quite follow what conclusion you wanted us to draw from that. Of course, the condemnation of the trade in a sense was a condemnation of any policy that affected the trade materially or injuriously. I do not quite follow the inference you wanted us to draw; I am sorry.

Mr. Noel Baker: If I may explain it briefly, it was this: I think that, as you say, obviously this trade Press depends upon the industry which makes military aircraft.

1489. *Chairman*: That is the same with all trade journals, is it not?

Mr. Noel Baker: Yes; but in this particular case it has the unfortunate result that these journals are read by everyone who is interested in aviation.

1490. *Chairman*: That is the same with all trade journals, temperance or any other?

Mr. Noel Baker: Yes. I have called them the organised air interests, and I have said that the effect of their writing over a long period of years has been to convince the vast majority of those who are interested in aviation that disarmament and international solutions of the air problem are nonsense, impracticable, and wrong, and even unpatriotic.

1491. *Chairman*: It is going a long way. With regard to the very intelligent people you say have been influenced, why should they take all these statements for gospel? I do not quite follow.

Mr. Noel Baker: I think that in fact they do.

1492. *Chairman*: They may agree with them, by thinking it out independently for themselves. It seems to me you are attaching too much importance and assuming that everyone who reads a newspaper believes everything he sees in it. I protest against that.

Mr. Noel Baker: I do not want to over-stress it, but I do want to suggest that the air-minded are rather a special case; aviators are passionately absorbed in aviation, and very often, one might almost say, they do not think of much outside it; and therefore I do think that the specialised aviation journals and the specialised aviation societies and organisations do have much more influence on their minds, particularly on these big questions of the future of aviation, than, for example, the Grocers' Journal would have upon the mind of the average grocer. That is the whole point that I wanted to put, though I do not underestimate by any manner of means the influence of the Grocers' Journal on the mind of the grocer. I think it is very great.

1493. *Chairman*: I understand now. I am sure we are all very much obliged to you for giving us your evidence.

Mr. Noel Baker: I am very much obliged to the Commission.

(Adjourned.)

STATEMENT OF EVIDENCE SUBMITTED BY MR. P. J. NOEL BAKER, M.A

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CHAPTER I

Introductory

1. I undertook the investigation of the subject of Private Manufacture of and Trade in Arms as an academic student a number of years ago. Since that time I have been gradually accumulating such information as can be gathered from the daily press, technical and other periodicals, Government Inquiries, and Parliamentary Questions and debates.

Throughout most of the period since 1918 I have been more or less closely in touch with the actual conduct of international affairs. I was a member of the British Delegation to the Peace Conference in 1919; personal assistant to the Secretary General of the League of Nations 1920-22; private secretary to the principal British Delegate to the League of Nations 1922-24; personal assistant to the League of Nations High Commissioner for Refugees 1925-29; Parliamentary Private Secretary to the Secretary of State for Foreign Affairs 1929-31; British Delegate to the Assembly of the League of Nations 1929 and 1930; private secretary to the President of the Disarmament Conference 1932-33.

2. My experience in these public capacities reinforced the conclusions which I had previously formed as the result of the academic studies I had undertaken. It led me to believe that the system of Private Manufacture of Arms is open to the objections which have been urged against it, and that these objections are of the most serious importance in their effect upon the course of international politics.

3. I do not desire to concentrate the attention of the Commission principally upon the nature or the seriousness of what the Covenant of the League of Nations describes as the "evil effects attendant upon" the system of Private Manufacture of Arms. As I understand the terms of reference under which the Commission is working, these evils are already admitted by His Majesty's Government to exist, and it is upon the assumption that they do exist that the Commission has been asked to examine what action should be taken either by His Majesty's Government alone, or through measures internationally accepted, to eliminate these "evil effects".

The Commission has been invited in particular to examine whether these "evil effects" can be eliminated by measures of what is called "control", or whether to do so will require the total abolition of Private Manufacture and the establishment of State monopoly, either by the unilateral action of Great Britain alone, or by general international agreement.

It is with regard to these practical problems of future policy, rather than on the character and extent of the evils of the present system, that I desire principally to offer evidence to the Commission.

CHAPTER II

The General Nature of the "Evil Effects" of Private Manufacture

4. But it is perhaps desirable, in view of my personal experience, that I should also offer some evidence to support my view that the objections urged against the system of Private Manufacture are substantial, and that I should explain how, in my belief, they produce the "evil effects" of which the Covenant speaks.

5. The objections to the present system are, I believe, adequately described in the language of a Report prepared by the First Sub-Committee of the so-called "Temporary Mixed Commission" established by the League of Nations in 1921 to consider the subject of Disarmament.* The Report reads in part as follows:

"In general, the objections that are raised to untrammelled private manufacture may be grouped under the following headings:—

"1. That armament firms have been active in fomenting war-fears and in persuading their own countries to adopt warlike policies and to increase their armaments.

"2. That armament firms have attempted to bribe Government officials, both at home and abroad.

"3. That armament firms have disseminated false reports concerning the military and naval programmes of various countries, in order to stimulate armament expenditure.

"4. That armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries.

"5. That armament firms have organised international armament rings through which the armament race has been accentuated by playing off one country against another.

"6. That armament firms have organised international armament trusts which have increased the price of armaments sold to Governments."

6. There would be no difficulty in taking these objections one by one and producing proved examples in support of the various charges which they contain. It is true, as Mr. Arnold Forster pointed out to the Commission, that "the competitive arms trade is conducted in conditions which offer every inducement and opportunity for secrecy, and usually it is only some accident . . . which flashes an occasional light into the darkness." Yet although there is available only a very small proportion of the total evidence which would be revealed if the books and files of all the armament firms of the world were made public, yet on each of the six points contained in the Temporary Mixed Commission's summary of "objections," adequate and conclusive evidence is available.

7. It is usually by reference to these six charges that the subject is treated, and the Commission is no doubt familiar with the considerable body of literature in which the evidence under each of the several heads is set forth. In my submission, that evidence has established the case against the existing system.

But in some ways this usual method of treatment—by taking separately and *seriatim* the different objections to the existing system, and showing that in such and such a country cases of bribery have occurred, that elsewhere a panic has been started, that elsewhere a so-called "Patriotic Society" has been under the undue influence of the makers of armaments—is liable to obscure the true significance of the major evil which the present system involves. I would state that major evil in the following way:

The investment of large sums of private capital in armament production creates a permanent and powerful vested interest, the participants in which all depend for their prosperity on the policy which Governments pursue in respect of armaments. By the nature of the case, the controlling representatives of this vested interest wield great financial power,

* A.S.I. 1921. C. 321. 1921.

are brought by the necessities of their business into close contact with Government Departments, and generally possess or are able to establish close political connections. This vested interest constitutes a powerful force which inevitably favours the increase of armaments and opposes those policies which tend to diminish armaments and reduce the risk of war. It exercises this influence in all important countries in a more or less open and in a more or less effective way. Its methods differ according to the political habits and practice of different countries. But whatever its methods, the effect is the same: the steady pressure of an elaborately organised and financially powerful vested interest against policies which make for peace and in favour of the increase of armaments, whether there is political justification for such increase or not.

This vested interest constitutes in some ways a veritable *imperium in imperio*. Its working was thus described in an official memorandum laid before the Admiralty in 1918 by a witness to whose evidence I submit that the Commission should attach high importance, namely, Admiral Lord Wester Wemyss, at that time First Sea Lord:

"2. Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, the system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of any kind naturally wants the largest possible output. Not only therefore has it a direct interest in the inflation of the Navy and Army Estimates and in war scares, but it is equally to its interest to push its foreign business. For the more armaments are increased abroad, the more they must be increased at home. This interrelation between foreign and home trade in armaments is one of the most subtle and dangerous features of the present system of private production. The evil is intensified by the existence of international armament rings, the members of which notoriously play into each other's hands. So long as this subterranean conspiracy against peace is allowed to continue the possibility of any serious concerted reduction of armaments will be remote."

The opinion thus put forward by Admiral Lord Wester Wemyss was the result of a long and close experience of the subject with which his memorandum dealt. His biographer, in explaining the proposals put forward in the memorandum which has been cited, writes as follows:—

"It was in a far different quarter that Wemyss believed the principal authors of the war were to be found.

"For years before its outbreak he had watched the baleful activities of the armament trusts; the manner in which they had, heavily subsidising the Press, influenced public opinion in every country, stirring up strife and creating an atmosphere of hostility, ill-will and suspicion between nations.

"He had realized all the danger brought about by international armament rings who, playing into one another's hands, had a direct interest in the inflation of navy and army estimates and in war scares; for the more armaments were increased abroad the more, obviously, had they to be increased at home.

"To put an end to the era of destructive wars and help on the cause of disarmament would, he felt, be only possible by eliminating the element of private gain from the manufacture of armaments and thus make the waging of war no longer a source of private benefit."

8. It is sometimes said that whatever may have been true of certain firms in the past, the situation has been changed by the fact that the private enterprises which now engage in armament manufacture also produce other "peaceful" goods, and that in fact the proportion of their output which consists of warlike goods is relatively small. From this it is argued that such firms have only a relatively minor interest in expanding their armament business, and that it is absurd to suppose that they trouble to take political or other action for the purpose. This argument is in particular applied to large combines such as Schneider, Du Pont, Bethlehem Steel, Vickers-Armstrong, or I.C.I.

But no evidence is ever offered for the view that such big firms or combines make less effort to increase their armament business than they make to increase their other kinds of business. Nor is it explained how such firms can be content to earn no profits on the very considerable capital which they have locked up in the specialised plant required for the manufacture of many sorts of arms and ammunition. In fact no armament firm is ever content to earn no profits on its armament plant, or fails to protest when the necessity for so doing is imposed upon it.

But the fact that armaments are now produced by great combines which also manufacture many other goods has a significance of a different kind. The "armament firms" proper which belong to these combines naturally and inevitably retain the desire to expand their armament business; but the fact that through the combines their interests range far beyond their armament output, and that the combines sometimes embrace a considerable proportion of the whole industry of the country, greatly increases their power to wield an important influence in politics and on the press. It is evident, indeed, that great corporations, with their wide financial, manufacturing and commercial activities and interests, with invested capital measured in tens, or it may be even in hundreds of millions of pounds, must be able to exercise an influence far greater than that of a company restricted exclusively to armament production. The wider and the more comprehensive the capitalisation in which the original armament firms are now involved, the more comprehensive the services of banking, advertising, purchase of raw materials, manufacture of semi-finished goods (e.g. steel, etc.) which the combines perform, the more powerful in influence they become, and the stronger they grow as a potential agency for political influence and propaganda.

It stands to reason, indeed, that the financial and industrial power, and therefore the political influence, of a combine such as that of Schneider or Du Pont in the national life of their respective countries must be immense; and the power in Great Britain of groups like I.C.I. and the combine connected with Vickers-Armstrong can hardly be less.*

* For a list of the subsidiary companies under the control of Vickers-Armstrong, I.C.I., Schneider, Du Pont, see Annex A.

CHAPTER III

Government Responsibility for the System of Private Manufacture

9. I do not desire to suggest that in endeavouring to promote their armament business the individuals who control what I have called the "vested armament interest" are inspired by unpatriotic motives, or that personally they are more morally reprehensible than other classes of business men. On the contrary, I have been convinced by a study of their speeches and writings that most of them are without doubt highly patriotic men, inspired by a genuine

desire to provide employment for their workers and to serve what they conceive to be the highest interests of their country. They genuinely believe that every increase in their business, however obtained, means an increase in the military strength and therefore in the security and welfare of their respective national States.

It is obviously absurd to expect that these men should judge the ethics of armament manufacture

from the point of view of those who have had no connection with it. To the ordinary citizen, national defence is connected with the loftiest motives; with the sacrifice of his highest interests, including the sacrifice of his fortune, his happiness, and even his life, for the protection of his country. To the private manufacturer of arms these conceptions come to be inextricably mingled with those of commercial interest. Not only so; but by the nature of his business he is brought into the closest touch with many phases of the work of preparation for war, and is thus familiarised with ethical standards which are necessary in preparation for war, but which conflict with the standards of morality accepted by civilised communities in their daily life.

Thus it happens that what seem to the ordinary citizen to be grave objections to the private manufacture of arms, seem to the manufacturer himself to be an inevitable feature of his share in national defence. He is not conscious of the objections which other people feel, because he is unable to perceive that the morality of his business is on any lower plane than a good deal of the morality of war and of preparation for war, of which his business is a part.

10. To say this is simply to argue that the private manufacturer is not responsible, and ought not to be made responsible, for the results of the system of Private Manufacture. The true responsibility lies with the Governments of the world, and with the ordinary citizens who have allowed those Governments, not only to promote, but actively to encourage, the development of the system.

It is not generally realised by many of those who have raised objections to the system of Private Manufacture how direct and how considerable is the responsibility of the Governments in this regard. The following facts deserve consideration:

(a) The War Departments of the most important Governments have gone as far as any advocate of the system of Private Manufacture in actively propagating the doctrine that the possession of a strong private armaments industry is an essential element of national defence, and that therefore every possible means should be used to increase the scale and output of that industry. War Departments have not hesitated to put forward this theory in official memoranda presented to Governments or to Legislative Commissions of Inquiry. And they have gone very far in acting on the doctrine which they preach. Indeed, in actual practice not only the machinery of the War Departments, but virtually the whole machinery of the State has been used to assist private manufacturers to increase their business at home and abroad, and in this way the seal of official approval has been set not only upon the system of Private Manufacture, but by implication upon the business methods which private manufacturers have adopted.

(b) In Great Britain official Government Committees in 1887* and in 1907† reported in favour of the system of Private Manufacture, and of increasing the share of armament orders given to private firms. Ministers of State have frequently declared, as the Right Hon. Reginald McKenna declared in 1909, that great armament firms are "a national asset" and that if they did not exist the "first duty of the nation would be to discover them."

(c) By a systematic and carefully planned distribution of orders, British War Departments have sought to increase the number of factories and establishments engaged in armament production.

(d) They have paid and are still paying direct subsidies to private firms for the maintenance of specialised armament plant. They have placed the results of armament research conducted with Government money at the disposal of private firms.

(e) Some Governments have on occasion approved or actually backed loans by their own nationals to foreign Governments in payment for arms purchased from their private manufacturers. There is one known example of the despatch of a warship, at the request of a private firm, on a special voyage to give a demonstration of artillery to the agents of a Government which was the potential client of that firm.

(f) Diplomatic support is given by the Embassies and Legations of virtually all arms-producing Powers to the agents of their private firms when they are seeking orders; on occasion this support is extremely active.

(g) Military and naval missions have on occasion acted almost as the agents of their country's private armament firms, and it has been an almost general practice that they should co-operate very closely with such firms.

I have emphasised these facts—all of which can be substantiated by numerous historical examples—in the hope that the Commission will understand that in what follows I have no desire to attach personal blame to any individuals for the evils to which the system of Private Manufacture gives rise. Everyone who reflects upon the matter must regret profoundly that it should be possible in the twentieth century for such evils to occur; but he will also recognise that they are not due to unscrupulous behaviour on the part of individuals, but are the natural result of a system for which Governments are responsible. He will further recognise that Governments are still actively promoting the development of this system, although it is founded on principles which are at variance with enlightened modern conceptions of morality and civilisation.

* Committee presided over by Mr. John Morley, M.P. (C. 5116, 1887).

† Committee presided over by Sir G. H. Murray (Cd. 3626, 1907).

CHAPTER IV

Recent Examples of the Influence of the Vested Armament Interest

11. But in spite of these important considerations, it none the less remains true, as was said above, that the existence of a powerful vested armament interest within the State is liable to exercise a dangerous influence on the political life of individual nations and of the world as a whole, by stimulating an artificial pressure for increases in armaments, and by opposing an obstructive propaganda to the adoption of policies of organised peace and disarmament, from which alone international stability and prosperity can result.

It would be easy to cite many proved historical examples of the way in which this dangerous influence has operated. In this regard, as Admiral Lord Wester Wemyss' evidence shows, the period before the outbreak of war in 1914 deserves particular attention. There is, indeed, only too much ground for his view that the vested armament interests played a part of first-rate importance in

preparing and shaping the events from which war resulted. In his book "Twenty-five Years" the late Lord Grey declared that in his mature judgment the most important cause of that war was armament competition—the competition in land armaments between the Triple Alliance and the Triple Entente, and the competition in naval armaments between Germany and Great Britain.* The forces of fear, distrust and passion which created and quickened the development of that armament competition were without question greatly strengthened by the activities of the vested private interest in armaments. We cannot doubt that in making such a condemnation of their activities as that which has been cited above, Admiral Lord Wester Wemyss was moved by his memories of the activities of Krupp,

* Lord Grey of Fallodon, "Twenty-five Years", vol. I, pp. 91-2.

which had been exposed in the German Reichstag by Herr Liebknecht in 1913; and of Mr. Mulliner, of the Coventry Ordnance Factory, which came to light when Mr. Mulliner's diaries were published in the *Times* in 1910. To those who have examined the history of the period with this in mind, it is difficult to doubt that the activities of such agents of the armament industry did much to create the forces by which the pre-war movements for organised peace and disarmament were brought to nothing—for example, the Hague Conferences, the Anglo-German naval discussions, and Mr. Winston Churchill's proposal for a "Naval Holiday."

12. Of these and other instances drawn from pre-war history, adequate accounts have been published in books with which the members of the Commission are no doubt familiar. It will, therefore, suffice to illustrate the argument which I venture to submit to the Commission if I cite two recent examples of what I mean.

13. The first is drawn from my personal experience at the Disarmament Conference in Geneva in 1932-33.

For the success of that Conference the co-operation of the Governments of certain continental countries was essential. It was known that the Governments of those countries genuinely desired to reach an agreement and to make a first Disarmament Treaty, provided they could obtain adequate support from their public opinion at home. In this policy they were, of course, opposed by some sections of their General Staffs, by some elements in the Government Departments, and by some sections of opinion. The strength of this opposition was enormously increased by the consistent hostility of the vast majority of their national press. From the opening of the proceedings in Geneva most of their newspapers consistently and grossly misrepresented what took place in the Conference. They suppressed news; in their comments they tried to create a general belief that early and complete failure was both expected and desired by all important delegations; and in their editorial articles they bitterly attacked both the Conference itself and the policy of disarmament which it was seeking to carry through.

This sabotage by the press was, in my belief, a very important factor in delaying the work of the Conference, in exhausting the first wave of determination to get results with which the Conference began, and in making it difficult for the Governments in question courageously to take the major decisions which were required for the adoption of any scheme of disarmament.

I have no absolute proof which I could submit in a court of law that this attitude of the newspapers in question was due to bribery or financial control by the vested armament interest; but I share the conviction of most impartial and well-informed observers with whom I discussed the matter at the time that this was the case.

14. The second example which I wish to cite relates to the question of air disarmament, and the part played in relation thereto by the private armament interests in Great Britain. For a variety of reasons it constitutes an extremely valuable illustration of the argument I wish to lay before the Commission. Thus:

(a) An agreement on Air Disarmament was of vital importance to the success of the Disarmament Conference, and therefore to the future strength and success of the League of Nations. As the present Prime Minister said while the discussions in the Conference were going on: "All disarmament hangs on the Air."

(b) In the facts to which I wish to draw the attention of the Commission there is no question of personal corruption or dishonesty, or of the ordinary evils generally connected with Private Manufacture.

(c) It is impossible to doubt the patriotism and public spirit of the individuals who were responsible for the action which I will describe.

(d) Their responsibility was lessened by the fact that they had the support and approval of the controlling elements of the Government Department—the Air Ministry—with which they were primarily concerned.

(e) Yet, as I shall endeavour to show, the fact remains that the vested air armament interest in Great Britain, by means of a long-period campaign of propaganda, had succeeded in leading what I may perhaps call the organised air interests of the country—i.e., the pilots, other ranks of military and commercial air services, officials, writers on aviation in the Press, etc.—to believe that the policy of Air Disarmament was foolish, impracticable and detrimental to British interests, and that all measures by which it could be brought about were unworthy of consideration by serious-minded and patriotic citizens of Great Britain.

(f) This campaign, resulting in the virtually unanimous opposition of the air interests to disarmament, was a principal factor in defeating the success of proposals for Air Disarmament in the Geneva Conference.

(g) The defeat of these proposals not only helped to cause the failure of the Disarmament Conference and thus to produce the present dangerous situation in Europe and throughout the world, but it also rendered a signal disservice to the vital interests of Great Britain, and in particular to the vital interests of British aviation.

15. In support of this contention I venture to put forward in a summarised, and therefore in what may seem a somewhat didactic form, certain conclusions based upon the prolonged debates among the air experts of many countries to which it was my duty to listen in the Disarmament Conference.

(a) Civil aviation is still in its infancy. Up to the present time it has been exploited for the most part on a national basis by national organisations working under national laws and restrictions of many kinds. In consequence those responsible for its development have tended to concentrate their attention principally upon short distance journeys. The advantage of aviation for short distance journeys is not very great; for long distance inter-continental journeys, on the other hand, its advantage is overwhelming, and it is certain that, as the technique of aircraft construction and knowledge of meteorological conditions and air navigation are improved, the future of aviation for the transport of passengers, mails and freight for long distances ought to promise almost unlimited expansion. Inter-continental air services, rendering to the world in at least a considerable measure the services which railway systems now render, for example, to the continent of Europe, would require a vast increase in the number of aircraft produced, in the number of pilots and other technicians employed, in the scale of the aircraft industry, and in the personnel of ground staffs and maintenance services.

(b) To regard the immediate military development of aviation as more important than this long-period prospect of civil expansion is extremely short-sighted. It is true that at the present time the output of military aircraft is at least ten times that of civil aircraft. But although aircraft are a relatively cheap form of armament, and although it is probable that at the present rate of development the major Air Forces of the world may in a short period of years reach the scale of ten thousand first line machines, there is nevertheless a limit to the taxable capacity of the peoples, upon which in the long run military expansion must depend. There is the further and much more important consideration that expansion on the scale already going on will rapidly create such an atmosphere of international distrust and strain that, as in 1914, the anxieties of the General Staffs will almost of themselves plunge Europe into war. With Air Forces of the magnitude now being planned, the destruction of that war will be such that, as the present Prime Minister has so

often said, western civilisation itself would probably not survive the struggle. It may be particularly noted that one of the first objectives of air bombardment in that war would be the factories of the aircraft industry, and that owing to the nature of their product these factories take up so much room that they are exceedingly vulnerable to air attack and virtually incapable of effective protection. It is therefore exceedingly probable that the result of an outbreak of air war to the private manufacturers of aircraft would be a total loss of their capital investments.

(c) Air warfare is, by common admission, a greater danger to the United Kingdom than to any other country in the world.

(i) The danger of large-scale air attack destroys our island immunity from invasion.

(ii) The vulnerability of merchantmen at sea to air attack makes our dependence on overseas supplies a deadly menace.

(iii) Aerial torpedoes launched from aircraft operating behind smoke screens laid by aircraft constitute an as yet untested, but, none the less, a disturbing menace to the sea-power of the British navy.

(iv) The danger to London and its docks of air bombardment is a greater threat to the heart of the British Empire than any blow which British Air Forces could possibly strike against any foreign Power.

In other words, total Air Disarmament and the effective abolition of air warfare would be of supreme strategic advantage to Great Britain and the British Empire, and would so increase our national security that it would be worth almost any price we were called upon to pay.

(d) But in fact the price which it would be necessary to pay to secure this strategic advantage is one which would not damage British air interests in any way, but on the contrary would probably promote them. For the proceedings of the Disarmament Conference showed conclusively that the only method of securing Air Disarmament and the abolition of air warfare lies in the effective demilitarisation of all civil aviation, and in the acceptance of some regime of international control over commercial aviation. But the demilitarisation of civil aviation, and the removal of the present national restrictions upon international flying, is the only means by which a big expansion of civil aviation can be hoped for. That is to say, the very measures which are required to give Great Britain immunity from the greatest single threat to the safety of the Empire are the measures which in themselves would open the way to the expansion of aviation as a world-wide service, linking the continents as railways link the provinces of national States to-day.

(e) And British aviation has more to gain from this demilitarisation and denationalisation of flying than any other nation in the world. For:

(i) As all experts are agreed, the geography of the British Isles militates against the large development of commercial aviation at home. Almost all other large countries have great advantages as against Great Britain in this regard.

(ii) Air communications between Great Britain and the overseas dominions have to follow routes which make the present national restrictions upon international flying a severe handicap. The difficulties of establishing effective services to Africa and India furnish striking examples.

(iii) In consequence, our present share of the commercial aviation of the world is far below the proportion which ought to result from the pre-eminent excellence of our national aeronautical research, of our aeronautical engineering, of our ground organisation, and of the flying-skill of our pilots. Any reasonable regime of international organisation and control would remove this unfair handicap.

16. During the Disarmament Conference at Geneva in 1932 and 1933, total Air Disarmament and the abolition of air warfare was proposed by the delegates of a large number of nations. It entered the realm of practical politics after the speech made in the House of Commons by the present Prime Minister of Great Britain on 10th November, 1932. In pursuance of the policy of total air disarmament urged in that speech, the British Secretary of State for Air, Lord Londonderry, went to Geneva and secured the establishment of a special Air Committee of the Conference. The terms of reference of this Committee were as follows:

"To examine the possibility of the entire abolition of military and naval machines and of bombing from the air, combined with an effective international control of civil aviation."

In the course of the debates in this Committee the policy of total air disarmament was warmly supported by France, Germany, Russia, Italy (subject to certain reserves which no doubt would have been waived if general agreement had been come to), Spain, Sweden, Belgium, Holland and other Powers. It was ultimately accepted also by the United States Government shortly after President Roosevelt came into office in March, 1933. The discussions of the General Commission of the Disarmament Conference showed that support among the smaller European Powers, among the South American republics, and other Members of the League was virtually unanimous.

But it was always evident from the first day of the discussion that agreement for total Air Disarmament could not be reached unless far-reaching measures were also accepted to fulfil a condition laid down by Lord Londonderry in the following terms: "*Provided that there can be devised an effective scheme for the international control of civil aviation which will prevent all possibility of the misuse of civil aircraft for military purposes.*"

In the course of the debates the following measures were put forward and were very widely supported as essential for the fulfilment of Lord Londonderry's condition:

(a) The total abolition by international convention of aerial bombing in all its forms.

(b) What was loosely called the "internationalisation" of commercial aviation, i.e., some regime of international organisation and control for commercial air lines, in particular the international lines on which heavy aircraft are in use.

(c) A system of international supervision and control for other kinds of civil aviation.

(d) The establishment of some system of joint collective air action to prevent the misuse of civil aircraft for purposes of aggressive war. For this purpose the French Delegation proposed the establishment of a European International Air Police Force, and secured wide support for their proposal. Other delegates suggested that the case might be met by the joint training and co-operation of small national contingents of military aircraft, maintained exclusively for the purpose of supporting the League of Nations in case of aggression.

Broadly speaking, these measures secured the general acceptance of a large number of Powers, and particularly of European Powers, represented in the Disarmament Conference. The opposition to their adoption made by the German Delegation was formally withdrawn on 27th May, 1933.

The opposition to all these measures was led by the British Air Delegates. Having listened to the discussions which took place, I venture to express the view that it was the obstruction of the British technical experts to the adoption of any practical plan for the four purposes mentioned above which was principally responsible for the failure of the Disarmament Conference to secure total Air Disarmament. I have heard the opinion expressed by many impartial observers that if the British air experts had been fighting for a disarmament solution as hard as they were fighting against it, the success of the Conference in this matter would have been certain.

How near the Conference was to reaching success, and how strenuous was the opposition of the British technical experts, has been explained by no less an authority than the then Secretary of State for Air himself, Lord Londonderry:

"In 1932 the Disarmament Conference assembled, and almost its earliest discussions were centred around the possibility of the total abolition of air forces or at least of the abolition of the artillery of the air, the bombing aeroplane, which is the weapon which is the distinctive arm of the Air Force and to which it owes its separate existence.

"Through that period, difficult for any Air Minister and particularly for one who, like myself, has always been convinced of the prime importance of the maintenance of an effective air arm to the security of this country, I kept impressing upon my colleagues and upon the country generally the vital nature and place of the Royal Air Force in the scheme of our defences. *I had the utmost difficulty at that time, amid the public outcry, in preserving the use of the bombing aeroplane, even on the frontiers of the Middle East and India, where it is only owing to the presence of the Air Force that we have controlled these territories without the old and heavy cost in blood and treasure. I felt certain that when the ideals of abolition were examined practically they would be discovered to be inapplicable in the state of the world to-day. We could not put the clock back.*" (Hansard, House of Lords, 22nd May, 1935, Col. 1017.)

17. It is, of course, true that Lord Londonderry, in making this speech and in allowing his air experts in Geneva to obstruct all practical proposals for dealing with the danger that civil aviation might be used for aggressive purposes, was acting as Secretary of State, and therefore with what may at least be called the permissive authority of the Government. In so doing he was certainly not fulfilling the desires of the British people, as subsequent evidence has clearly shown. But he was—and this is the point to which the attention of the Commission is respectfully directed—representing the overwhelming majority of what I have called the "organised air interests" of the country.

Among these interests there were notable exceptions of distinguished aviators who had held positions of high responsibility, and who publicly expressed themselves in favour of the policies necessary to secure Air Disarmament. But, broadly speaking, Lord Londonderry had the full support of all the air interests in the United Kingdom—whether in Government service, in commercial work, in the private aircraft firms, or among the experts who write about aviation in the press. Unless this had been true—if, that is to say, there had been a strong body of technical air opinion supporting and explaining to the country the plans for securing Air Disarmament put forward at Geneva—it would, in the state of opinion then existing, have been impossible for Lord Londonderry to authorise his experts to act as they did. In other words, it is virtually certain that, so far as this country at least is concerned, Mr. Baldwin's policy, had it received the vigorous support of even a considerable section of the "organised air interests", would have triumphed in this country, and, as has been argued, in Geneva also.

17a. The opinion of the "organised air interests", and the short-range view they took of the importance of aviation in the development of civilisation, was, in a considerable measure at least, formed by the work of two kinds of agency:—

(a) Some of the more widely read of the periodical journals which are devoted to aviation.

(b) The so-called "Patriotic" Societies which have devoted themselves to preaching the necessity of "Air Power" to British opinion, and to promoting the interests of aviators and the aircraft industry in various ways.

18. The periodical journals have an immediate short-period vested interest in the expansion of military aviation—at least so long as Government purchases of military machines constitute the principal market for the aircraft industry. One of them has declared in an editorial article that it could not live without the aircraft industry, which in its turn lives by its sales of war machines. A perusal of the pages of these journals shows that without the advertisements of military machines which they receive from private manufacturers, they might find it difficult to carry on.

The periodical journals in question have, for a long time, consistently attacked the policy of Disarmament in all its forms. They have attacked all the proposals for the international control of civil aviation, by which the abolition of air warfare might be obtained; they have vigorously resisted the abolition of aerial bombardment; some of them have attacked the League of Nations and all policies of international co-operation; one at least has consistently preached the certainty of another world war in a comparatively early future; some of them have strongly supported the system of Private Manufacture and have attacked the proposals for its abolition. They have thus helped to create a general belief in the minds of their readers that all policies of international organisation and co-operation are utopian, unpatriotic and dangerous.

19. There have been at different times several "Patriotic" Societies which have concerned themselves with teaching British opinion the value of "Air Power," and with emphasising the weakness of our present Air Forces in comparison with those of other States. During the Disarmament Conference their activity was particularly intense; they organised a campaign against the abolition of aerial bombing; they attacked disarmament in all its forms; and for many years before the menace of German air re-armament had begun they urged great increases in the size of the British Air Force. They have always shown particular anxiety concerning the interests of the private manufacturers of military aircraft, and they have sometimes intervened officially with Government Departments on their behalf. There is considerable evidence for the view that the financial and other connections of these "Patriotic" Societies with the private manufacturers of military aircraft have been close enough to prove decisive in determining the policy which the societies pursued.

20. It is respectfully submitted for the consideration of the Commission that the persistent propaganda of these journals and organisations, conducted over a long period of years, played a great part in converting the "organised air interests" of Great Britain to the view that the real importance and real future of aviation lay in preparation for war, rather than in preparation for peaceful international co-operation; and that the expansion of British military air forces was the supreme purpose which all "air-minded" patriots should at all costs strive to attain. It is further submitted that in so doing these journals and organisations played a considerable part in defeating the policy which Mr. Baldwin laid before the world in his speech of 10th November, 1932, and which, as Lord Londonderry has said, came so near to success at the Disarmament Conference six months later.

The above facts have been set out at such great length for the reason that they appear to me to offer a unique, but little noticed, example of what I have called the "major evil" of the existing system of Private Manufacture, namely, that it creates a permanent vested interest which leads men of high probity and public spirit to exert a continuous and sometimes exceedingly influential pressure against the policies of organised peace and disarmament, and in favour of armament increases of different kinds.

CHAPTER V

The Basic Principles of Armament Policy: International Anarchy and Organised Disarmament and Peace

21. I have argued above that the system of Private Manufacture of Armaments is one for which Governments, and therefore the peoples of the civilised countries as a whole, are responsible, and that it is foolish and unjust to saddle the private manufacturers with special blame for what they do to increase the sales of their goods under competitive conditions similar in many regards to those of other industries.

I desire now to call the attention of the Commission to some of the basic principles which His Majesty's Government ought to bear in mind in formulating their policy concerning Private Manufacture.

22. The purpose of national armaments in the modern world, as determined by international treaties, is to preserve peace and to secure the safety of national territories from invasion.

23. In seeking to fulfil this purpose, Great Britain has associated itself with 56 other nations in establishing the collective system of the League of Nations Covenant and the Pact of Paris for the Renunciation of War. Under this system:

(a) Conquest is abolished by the guarantees of Article 10 of the Covenant.

(b) War is forbidden "as an instrument of national policy". (Articles 12-15 of the Covenant; Pact of Paris.)

(c) Machinery, procedure and law are provided for the pacific settlement of international disputes. (Articles 12-15 of the Covenant; Kellogg Pact; Permanent Court of International Justice; Optional Clause; General Act.)

(d) Disarmament by international agreement to the lowest point consistent with national safety and international obligations is enjoined. (Article 8 of the Covenant.)

(e) Full publicity with regard to armaments is enjoined. (Para. 2 of Article 8 of the Covenant.) (It has been shown that in practice this must involve international inspection, if the obligation is to be effectively observed.)

(f) Collective action by all Members of the League is enjoined against any State which disturbs international order by resort to aggressive war. (Articles 16 and 17 of the Covenant; Locarno Pact.)

24. Unfortunately the provisions of Article 8 of the Covenant have not yet been fulfilled, and so far as armaments and armament policy are concerned, Governments are not yet basing their policy upon the principles of the collective system by which in law they are bound.

On the contrary, with regard to armaments they are still pursuing the policies of what has been called the "international anarchy" of the pre-war period. This anarchy leads almost automatically to armament competition and to the formation of armed alliances. As the armament competition between rival groups becomes more acute and more dangerous, it means that in practice Governments must subordinate almost every other consideration of national policy to prospective military advantage; it means that diplomacy must, in considerable measure, be founded not only upon the principle "my country, right or wrong", but upon the still more pernicious principle of "my alliance, right or wrong". This principle is not only inconsistent with, but is utterly destructive of any organised system of international law and order.

As I have said, the great majority of nations are legally bound by the obligations of the two treaties analysed above; and the Governments have by no means abandoned their attempt to make the collective system a reality. On the contrary, responsible members of the most important Governments have recently declared that it is more essential than ever that the nations should uphold the Covenant in order that by so doing they may be able to arrive at effective disarmament agreements. But since such agreements have not yet been made, every Government feels itself obliged to apply in armament policy the principles of the system of international anarchy. In some ways (e.g., in respect of scientific research for the "improvement" of armaments) the armament competition and the dangers which it involves are far greater than in the pre-war period. There are many signs of a return to the old policy of alliance and counter-alliance, and espionage has never been more active than at present.

25. It is plain that the merits of the problem of the Private Manufacture of armaments may differ considerably under these two systems.

Private Manufacture is certainly open to objection on moral grounds; but it is difficult to maintain that it is ethically more reprehensible than the rest of the system of international anarchy, i.e., armament competition, and the espionage and power-diplomacy to which armament competition obliges Governments to resort. So long as foreign policy is founded upon the expectation of war and the pursuit of military advantage in war, then the moral aspects of Private Manufacture will remain of secondary importance. Similarly, from the technical point of view, the removal of the "evils" of Private Manufacture would be far simpler under a disarmament system, while from the political and strategical points of view some people would certainly argue that, while Private Manufacture may be an unhappy necessity under conditions of international anarchy, it would be dangerous and undesirable to retain it under a system of international disarmament.

In other words, the conditions of the two rival systems of international anarchy and organised collective peace and disarmament differ so fundamentally that it may clearly be possible that measures for dealing with Private Manufacture which ought to be adopted under the one system may be undesirable or impossible under the other.

26. In the evidence which follows I propose to argue that even if His Majesty's Government are unable in the near future to secure an international treaty for the Reduction and Limitation of Armaments, including a stringent system of supervision and control, it will nevertheless be to the advantage of the nation that they should abolish Private Manufacture of armaments on British territory. I venture respectfully to suggest, however, that even if the Commission should not find it possible to accept this conclusion, they should nevertheless consider, as a separate problem, whether, when disarmament is finally brought about, Private Manufacture should not then be abolished.

In other words, I submit that the Commission should consider the problem of armament manufacture on two hypotheses:

(a) That of a collective system of the kind which His Majesty's Government is endeavouring to create, including a Disarmament Treaty, full publicity for armaments, and international supervision and control; and

(b) The conditions of international anarchy upon which armament policy at the present time is in fact determined;

and that they should make recommendations for action by the Government appropriate to the differing conditions which these two hypotheses involve.

CHAPTER VI

How to deal with the "Evil Effects" of Private Manufacture:
Abolition or Control?

27. If it be admitted that the authors of the Covenant were right in declaring that the system of Private Manufacture is "open to grave objections," and that measures should be adopted to eradicate the "evil effects" to which it leads; or even if only a *prima facie* case for this view can be made, every right-minded person, including certainly those engaged in the manufacture of armaments themselves, must ardently desire that adequate measures should be taken to suppress these evil effects. As the terms of reference of the Commission show, His Majesty's Government evidently desire that the Commission should make all useful proposals to this end.

Broadly speaking, the proposals so far put forward fall under two broad headings: those for what is loosely called *control*, and those for the *abolition*, of Private Manufacture.

28. The word "control" is loosely used to describe widely differing kinds of systems.

(a) Some people who use it mean nothing more than the acceptance by all nations of the system now in force in Great Britain, namely, that arms and ammunition must not be exported without the previous granting of a Government licence. There are those who claim that if this system were internationally adopted, the evils of Private Manufacture would be effectively prevented.

(b) Others have used the word "control" to mean something more ambitious. They have usually taken the Convention of 1931 on the Manufacture of and Traffic in Dangerous Drugs as the model for the system they propose. Under that Convention, they point out, each signatory State is allowed a limited annual supply of various drugs for its "legitimate scientific and medical requirements." Thus the total legitimate world demand is officially determined. This demand is met by the various private drug factories in the nine or ten countries which rank as "Producing States." These factories both supply their home markets and export the drugs required by non-producing States. No factory may manufacture drugs at all without a licence from its Government; nor may it export drugs without a further licence, specifying the permitted quantity and the destination to which the drugs are sent. Copies of all these licences must be furnished to the Secretariat of the League of Nations, for examination by the League Central Board. All factories are subject to close national inspection, and their total product is carefully controlled. Combined with the international control of the League Central Board, this system of licences and inspection ensures, it is maintained, that drug production does not exceed the total of legitimate world requirements, thus the illicit trade in drugs is dried up at its source.

A similar system, it is argued, could be established for the Manufacture of and Traffic in Arms. The Disarmament Convention would establish the world's total "legitimate requirements." A system of licences and inspection, under the control of the Permanent Disarmament Commission, would ensure that this total is not exceeded. Since the Disarmament Treaty itself would forbid armament expansion beyond permitted limits, the evils of private firms' solicitation for orders would be removed. And as for illicit traffic, it is maintained that while smuggling of drugs may be easy, the smuggling of Arms and Munitions is very hard.

(c) Others who advocate control have gone even further in what they demand. The United States Government, for example, have put forward in Geneva a Draft Convention, the merits of which have been explained to the Commission by Miss Kathleen Courtney. If this Draft Convention had been adopted, it would have involved not only

national Government licences for the manufacture, export and import of arms, together with the publication of all armament orders before their execution; it would also have meant a system of international inspection and control of all armament factories.

(d) Yet others have proposed the establishment of a National Arms Board, with a monopoly of the distributive trade in arms, both for home Government consumption and for export. Although this proposal is sometimes put forward as an alternative to the abolition of Private Manufacture of Arms, it yet goes so far beyond what is ordinarily meant by control, that it hardly falls within the discussion of this present chapter.

29. It is plain that systems of control such as that contained in the Convention on the Manufacture of and Traffic in Drugs, or in the Draft Convention put forward by the Government of the United States, would considerably reduce the present unhampered freedom of the armaments trade. Moreover, if a system of licensing and control were founded upon and linked to the principles of the Covenant and the Pact of Paris, it might serve a most important purpose. For it would then become a rule of national policy that no licence should be granted for the export of arms to States engaged in aggressive war in violation of the Covenant and the Pact, or to States whose disputes were subject to the consideration and adjudication of international tribunals. Indeed, such a rule would seem to be the logical result of the acceptance by a Member of the League of any system of Government licence for armament exports, since, as the United States Government has pointed out, licensing of exports establishes the principle of full Government responsibility for the despatch of arms even from private sources, and thus implies Government approval of the purpose for which the exported arms are to be used.

I will later suggest that the Commission would do well to recommend to His Majesty's Government the adoption of a stringent system of control on the lines proposed in the United States Government's Draft Convention; and that this system should be operated on the basis of the principle just suggested, namely, that the export of arms should never be allowed to States who may be engaged in preparing aggression, or who have actually violated their international engagements by resort to aggressive war.

30. But it is difficult to see how any system of control of the kind now under discussion (not, of course, including the proposal for a National Arms Board) can remove the evils of Private Manufacture referred to above. How can the British Government, for example, before it issues an export licence, ascertain that the order for the arms to be exported has not been obtained by bribery and corruption of the officials of some foreign State? How can they be certain that the agents of co-operating armament firms have not agreed to "play one country off against another"? How can they, by a licensing system, ensure that those who control private armament firms shall not also control newspapers in their own and foreign countries? How can they ascertain that agents of armament firms have not "disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armament expenditure"? How can they ensure that the firm seeking the export licence does not form part of an international trust or combination?

It is difficult to resist the conclusion that those who urge that "control" is adequate, or who simply advocate the general adoption of an export licence system such as that which Great Britain to-day enforces, are not really convinced that there are any considerable evils in the present system which need to be removed.

31. It is, indeed, evident, whatever the advocates of control may say, that no system of licensing and supervision can in itself remove the real cause of the major evil of the present system, namely, the fact that a large number of influential people with important industrial, social and political connections and with large financial resources at their disposal are, by the nature of their business, driven to work for the increase of existing armaments. Under any system of control, however stringent, the profit motive will continue to operate.

32. In the first place, it is plain that unless the system of control is combined with an international agreement on disarmament, i.e., for the qualitative and quantitative reduction and limitation of the stocks of arms which nations are permitted to possess, the profit motive will have a free field for its operation exactly as it has to-day. Those who make and sell armaments will continue to seek new contracts, and the system of "control" will place no restrictions upon Governments in giving orders whenever the agents of private firms can persuade them that their countries require greater quantities or new or better qualities of arms and ammunition.

33. But it may appear at first sight that if the system of "control" were combined with an international treaty for the reduction and limitation of armaments, then it would suffice to remove the unfortunate effects of the profit motive. And no doubt, if it were honestly applied, such a combined system of disarmament and control would severely hamper the operation of the profit motive, since it could not fail to check the increase of armaments which private manufacturers desire. It would moreover greatly assist the Governments in checking what have been called the "minor evils" of the private trade in arms, i.e., the illicit traffic with backward and uncivilised parts of the world. In this way, if generally adopted and combined with an adequate system of publicity and control, it might prove of real assistance to the British army in preventing costly outbreaks of disorder on the remote frontiers of the Empire. The system could be made more effective if evasion of the prohibition to export without licence were punished by the subsequent withdrawal of all British Government orders from the offending firm.

34. But even under a Disarmament Treaty, the profit motive would in some degree continue to operate, and what may be called the inherent disadvantages of Private Manufacture would appear. Thus:

(a) The private armament firm would have, under a system of armament limitation and international control, an *enhanced* incentive to recoup the diminution of profits which reduction of armaments must cause by indulging in illicit production and trade. How true this is has been proved by the Central Drugs Board, which has discovered illicit traffic on the largest scale.

It is true that arms and munitions are harder to smuggle than drugs; but there has been enough "gun-running" in modern times in Ireland, China, the Riff, the Persian Gulf and elsewhere to prove that Governments cannot always prevent it, however hard they try.

(b) Private firms would likewise have an enhanced incentive to establish new arms factories in countries where the administration is incompetent or corrupt, and where, in consequence, the system of control would be less effective. Drug manufacturers have proved how real is this danger, by establishing factories in such countries. The danger would be increased in respect of arms by the absence of publicity in countries which are not governed by the methods of Parliamentary democracy.

The uncontrolled production of arms in such countries might constitute a serious menace to international peace, particularly on the remote frontiers of the British Empire.

(c) The danger of such abuse would be greatly increased if the Disarmament Convention failed to impose the strictest quantitative limitation upon arms of every kind. Indeed, even if a strict quantitative limitation is imposed, the control of that quantitative limitation of small arms, aircraft, and other weapons will present the Permanent Disarmament Commission with serious problems. These problems would be far harder to solve if scores of private armament firms throughout the world were actively engaged in trying to mislead the Commission's agents and defeat their efforts.

(d) The private firms would have an enhanced incentive to expand their diminished market by *qualitative* improvements in the arms they sell. The firms would be continually endeavouring to persuade their own and foreign Governments that, without exceeding their respective quantitative limits, they could increase their strength by scrapping their existing permitted weapons, and by substituting new and better models.

The continual application of scientific invention to armaments, and the unending stream of new and improved weapons which the private firms already produce to-day, show that this danger is a real one.

(e) The private firms have every incentive to arm a Government which is engaged on, or which is preparing, an aggression.

The fact that this aggression may involve a flagrant violation of international law and justice is of no importance to the private firms, whose sole concern is to do as much business as they can.

Advantages of State Monopoly under a Disarmament Treaty.

35. The disadvantages of Private Manufacture just described all arise from the fact that private capitalists engaged in arms-production must necessarily have a private interest—namely, increased profits—which would make them seek to induce Governments to spend more and more money on armaments, even if to do so the Governments must circumvent or defeat the purposes of the Disarmament Convention.

36. But this private interest would be in evident conflict with the public interest of the nation as a whole. For it would be the overwhelming interest of the nation—and particularly of a nation like ours, which desires always to fulfil its international obligations—that the Disarmament Convention should be scrupulously observed. It follows that if a Government abolished Private Manufacture and established a State monopoly of armament production, its interest would always lead it to exactly the opposite result from that produced by the interest of private armament firms.

37. For example:—

(a) A Government must always desire that foreign Governments should not secretly exceed the limits of their permitted armaments under the Disarmament Convention; for every violation of these limits will reduce its own relative strength as compared with the Governments which are guilty of such violation.

(b) On the assumption that foreign Governments are observing their disarmament obligations, a Government must always desire that its own national defence should lay the lowest possible burden upon the taxpayer. The Government has no motive for increasing expenditure, but exactly the reverse.

(c) A Government can have no conceivable interest in establishing illicit arms factories in countries where the administration is incompetent or corrupt. It is its evident interest, indeed, that no such factories should be established.

Under a system of state monopoly, moreover, there would be no trained personnel at the disposal of private capitalists to be placed in charge of such illicit enterprises. The Government would naturally prohibit its own employees, under severe penalties, from taking service abroad.

(d) A Government can have no interest in "qualitative improvement" in existing armaments.

To "improve" its own armaments must add to the burden of its unproductive expenditure, and must involve the risk that other Governments will follow suit in a new qualitative competition.

To sell "improved" arms to the Governments of other States would obviously be to add to their relative military strength at its own expense.

(e) A Government can have no interest in arming a foreign state that is engaged on, or is preparing, an aggression. On the contrary, its overwhelming interest is that world law should be everywhere observed.

38. Quite apart from the question of interest, it is inconceivable that a Government should take the responsibility of arming an aggressor or indulging in illicit trade. The risks of exposure would be intolerably great. The anxiety of the Italian Government to disclaim responsibility for arming Hungary a few years ago, is proof enough. It may be asserted with the utmost confidence that, if there had been no private armament firms in the world, Japan would have received no arms from abroad to assist her in her recent aggression against China, and that the Governments of Bolivia and Paraguay would not have received the arms from abroad without which their war in the Chaco could not have been conducted.

38a. The unfortunate results of the profit motive could, perhaps, be further mitigated if the system of control were extended beyond the proposals for licensing, publicity of orders, and international inspection, which are all that have been hitherto officially suggested. If, for example, private armament firms were subjected to the kind of measures now imposed on Public Utility concerns, whereby their profits are limited either directly or by fixing maximum prices, the private manufacturers of arms would have both less reason and less freedom to seek to circumvent or defeat the provisions of a Disarmament Treaty.

The successful working of any such plan would, of course, require full publicity of the correspondence and accounts of the private armament firms, and a stringent system of government inspection of factories, stocks, etc.

It can hardly be hoped that this plan would serve the public interest in regard to prices as well as the system of Government monopoly. For the administrative expenses of control would be considerable, while in fixing maximum prices a certain margin would always have to be allowed to the private

manufacturer. Thus unless the manufacturing methods of Government establishments were definitely less efficient, prices under such a system of control would tend to be higher.

38a. This plan of what I have called "Public Utility Control" would deserve more careful consideration if it had been officially put forward as an alternative to the abolition of Private Manufacture. And although it has not yet been officially proposed, I would venture respectfully to urge that if the Commission decided that it was impossible for them to recommend the abolition of Private Manufacture, at least so long as the conditions of present-day international anarchy endure, it might be desirable that they should recommend as an alternative this system of "Public Utility" control. If, combined with the other measures of licensing, inspection, etc., described above, this plan would certainly be of great value in mitigating some of the evil effects of the present system.

Conclusions.

39. But even if "control" were thus extended to include the fixing of prices or the limitation of the maximum rate of profit, it would still remain true that the private manufacturers of arms would have an interest to increase their sales. For that reason no system of control can wholly eliminate the social and political objections to the system of Private Manufacture. And so far as the other measures of "control" (i.e. licensing, inspection, etc.) hitherto discussed by Governments are concerned, I respectfully submit to the Commission that the considerations put forward above justify the conclusion that no such system can suffice to remove the major "evil effects" of Private Manufacture.

I submit:

(a) that under conditions of international anarchy such measures of licensing, etc., would obviously be wholly inadequate to the requirements of the situation;

(b) that even if they were combined with a system of international disarmament and supervision, the working of the profit-motive would remain, in the ways described above, a serious weakness.

I submit, therefore, that there is a *prima facie* case in favour of the abolition of Private Manufacture and of its replacement by a Government monopoly of the production of arms. I submit that this *prima facie* case ought to determine the main findings of the Commission, unless the Commission are convinced that there are important practical advantages in the system of Private Manufacture, or important practical difficulties in its abolition.

CHAPTER VII

The Alleged Advantages of a System of Private Manufacture

39a. I venture, therefore, to submit to the Commission the following examination of the alleged advantages of Private Manufacture and of the alleged difficulties involved in its abolition. For this purpose I have based my argument upon the contentions put forward by Government advocates of Private Manufacture in Parliamentary Debates, and in other official pronouncements on the subject.

39a. For greater convenience, I will arrange these contentions under the following headings:—

(1) The general advantages of industrial and commercial competition and of the profit-motive in the production of arms.

(2) The comparative prices charged to the national exchequer for armaments produced respectively by Government establishments and by private firms, i.e. the alleged heavy cost of the abolition of Private Manufacture.

(3) The advantages of progress in invention and design due to private enterprise and competition.

(4) The advantages of an export trade in arms.

(5) The increased capacity to expand national armament production in time of war alleged to result from the system of Private Manufacture.

(6) The difficulties of defining "armaments" for the purposes of the abolition of Private Manufacture.

(7) The difficulties of foreign trade under a system of Government monopoly: i.e. neutrality; the position of the smaller non arms-producing States; the supply of arms to Great Britain from foreign governments in time of war.

(8) The technical difficulties involved in the nationalisation of the armament industry.

Finally, I will conclude this Statement of Evidence with a summary of the recommendations which, I respectfully submit, it is desirable that the Commission should make to His Majesty's Government.

CHAPTER VIII

The General Nature of the Alleged Advantages of the System of Private Manufacture

Competition and the stimulus of private gain.

40. The general advantages which are alleged to be inherent in the system of Private Manufacture, as the result of the stimulus of competition and profit which it provides, have been admirably stated to the Royal Commission by an earlier witness, who has had wide experience of armament production in the service both of the Government and of private firms. In his Statement of Evidence, Sir Eustace Tennyson d'Eyncourt said:—

"The aspect of this question to which I specially wish to draw attention is the necessity of ensuring that war material should be of the best and most efficient design and construction. That this is a necessity is obvious, whatever the decision on the question of limitation of armaments may be; although it may be argued that the more limited the quantity the better still should be the quality.

"Having had experience with establishments manufacturing armaments, and with government departments, for nearly 50 years, I have been in a position to form an opinion on the subject; and as the result of the most careful study of the question, my considered opinion is that to abolish the private manufacture of arms altogether and put the whole thing under Government control would certainly not make for efficiency.

"There are many reasons for arriving at this opinion.

"*With private firms, not only is there competition between one firm and another—whether in the case of home firms against one another, or British firms versus foreign firms—but there is a strong incentive to individuals to find some new and improved devices which will not only help the firm for whom they work but will also improve their personal position with that firm. This is a consideration which does not exist to nearly the same extent in government departments.*"

41. Before considering Sir Eustace d'Eyncourt's claims concerning "efficiency" and the advantages of "a strong incentive to individuals", it may be useful to examine the more important part of his statement—that which relates to "competition between one firm and another, whether in the case of home firms against one another, or British firms versus foreign firms."

It is necessary to begin by inquiring how far there is any real competition in the armament industry.

42. First, what competition is there in the home market of an arms-producing country, e.g., in Great Britain?

Plainly competition does not work in the business of arms-production as it does in other departments of industry, for the practice of Government limits its operation in two important ways.

42a. First, it is an accepted principle of policy that the arms manufacturing capacity of Great Britain—i.e., the actual output of arms in time of peace—should be increased to the utmost possible extent. It follows that the Government must purchase all its arms from home producers. This has been declared in Parliament by Ministers of the Crown to be the accepted policy of all the Service Departments and, as reference to the relevant official statistics will show, there is virtually no import of arms into Great Britain. That is to say, there is no foreign competition of any kind. The same is true of all arms-producing States. Thus the Governments of these arms-producing States do not benefit by the international rivalry of private firms.

43. Second, Government practice limits the normal operation of competition within the home market. As was stated by a Minister in Parliament in 1928: "There are . . . all over the country great naval building establishments (i.e., the great private

firms) which in the interest of the country must be kept going We have to keep the dockyards in a state of efficiency and not let the private yards go out of use".*

With this in view, Government Departments endeavour to "spread" their orders. That is to say, they seek so to place their orders that as many different plants as possible may be engaged at least part-time on arms-production. This practice of "spreading" orders and the desire not to allow private plant to "go out of use" must plainly limit the operation of competition, must favour the growth of understandings and agreements among the firms which receive this favourable treatment, and must predispose the Government not to insist too rigidly on competitive prices or on the acceptance of the lowest tenders.

44. Moreover, there are special characteristics of the armament industry itself which makes it more liable than other industries to develop trusts, combines, or agreements. Thus:—

(a) The firms engaged in it suffer such violent fluctuations of prosperity—long periods of stagnation being followed by periods of rapid expansion—that new firms do not enter readily into competition with established firms.

(b) The importance of patents is enormous, for Governments insist on buying only the newest and most efficient types of arms; and established firms with strong Government connections are obviously much better placed than new or weaker competitors for securing patents for inventions.

(c) The nature of the market and the character of the salesmanship required must no doubt deter others from seeking to enter the industry.

(d) The extreme complexity of modern weapons and ammunition, the great number of different components required, the many kinds of expert skill and scientific knowledge needed for research, design and production, favour large and powerful combines.

(e) The importance of chemicals and steel favours vertical, as well as horizontal combination, and thus tends to eliminate the weaker firms.

For these reasons there has been in most arms-producing countries a tendency in the armament industry either to monopoly or to cartellisation. This has been notoriously true in the past of arms-production in Germany and France. And in Great Britain there has been for many years much less real competition than Sir Eustace d'Eyncourt's statement would appear to imply.

45. Even when there are a considerable number of firms, in appearance independent of each other and submitting competitive tenders for Admiralty or War Office orders, it is difficult to know whether they are not in reality working together behind the scenes. Even before the war many armament firms were linked together by inter-locking directorships. In a valuable study of the pre-war British armament firms, the late Mr. G. H. Perris showed that 15 persons held no less than 43 directorships in 14 companies. No doubt such arrangements must have led to a good deal of close co-operation between the firms in question.

But, as previous evidence offered to the Commission has shown, the whole armaments trade is now very closely connected with the general body of the iron and steel industry, the chemical industry, the electrical industry, and even the raw materials industries. Inter-locking directorships, share participations, control of apparently independent subsidiary companies, agreements to exchange patents, to concert with regard to prices, etc., have no doubt done much to limit free competition.

* Lt.-Col. Headlam, Financial Secretary to the Admiralty, in the House of Commons, March 22, 1928.

46. As long ago as 1907 a Government Committee, presided over by Sir G. H. Murray, which recommended a large increase in the proportion of orders given to private firms, nevertheless wrote in their Report as follows:

"With regard to other kinds of necessary supplies, including some of the most important and costly munitions of war, the operation of those economic principles which ordinarily determine prices is less certain.

"Not only are the sources of supply in these cases strictly limited, but demand also is limited. Government finds itself in the position of a consumer supplied by a limited number of producers, who enjoy something approaching to a monopoly; and effective competition can scarcely be said to exist.

"It is obvious that such conditions are favourable to the existence of understandings of a more or less formal nature, between the few firms who are capable of supplying the requirements in question; and experience shows that where Government is not in a position to manufacture for itself, full advantage will be taken of its necessities."

Describing the working of the armaments industry as he found it nearly ten years later, Dr. Addison, in his evidence to the Commission, said as follows:

"So far as I ever ascertained there was no effective competition between these firms as to price, whilst there were many evidences of a fairly close understanding between them."

In a speech made in the House of Commons on 8th November, 1934, Sir John Simon said:

"A nucleus of state factories is useful not only for the weapons that they themselves produce, but as a check on the prices and qualities of those produced by private companies."

This last statement of Sir John Simon's is no less significant or important than those of the Murray Committee and Dr. Addison. For if Government manufacture is useful "as a check on the prices and qualities" of the arms "produced by private companies," this means, and can only mean, that apart from Government manufacture there is not enough competition in the private trade to ensure high quality and reasonable prices.

It may be added that this argument for the maintenance of Government Arsenals has been used in Government pronouncements in almost every arms-producing country in the world, and that Sir John Simon's language was textually reproduced and unreservedly endorsed in a memorandum laid before Senator Nye's Commission of Inquiry by the War Department of the United States Government.

47. Whatever free competition may have existed in Great Britain when the Murray Committee made its Report in 1907, the field for the operation of that competition has certainly been narrowed since then. So far as I have been able to discover, the present situation is roughly as follows:—

Small Arms.

Only the Birmingham Small Arms Co. manufactures military rifles. Only Vickers-Armstrong and the Birmingham Small Arms Co. manufacture machine guns. The manufacture of small arms ammunition is virtually a monopoly of the subsidiary companies of I.C.I.

Artillery.

For most types of artillery Vickers-Armstrong are now the only firm in the field. Details of the guns they produce fill seven pages of *Brassey's Naval and Shipping Annual* for 1935. It is true that Brassey also gives a page to guns produced by Beardmore, including some of the same categories as those made by Vickers-Armstrong; but in fact Beardmore only manufactures gun-barrels, and virtually there is no competition except that of Government Arsenals.

Only Vickers-Armstrong produce gun-mountings. For many types of gun-mountings there is no production by Government Arsenals, and therefore no competition of any kind.

Gun ammunition.

Vickers-Armstrong and their subsidiaries appear to be the only firm producing many types of gun ammunition. Hadfields manufacture gun ammunition, and in particular some special types of naval armour-piercing ammunition, but in these special lines they appear to be without competitors.

Warships.

There are eight private yards which could lay down as large a battleship as is contemplated by naval authorities to-day, but according to an anonymous authority in "*Brassey's Annual*," "the only British private undertaking which can build a complete armoured ship out of its own resources is Vickers-Armstrong Ltd." This, no doubt, gives Vickers a great competitive advantage.

There are important financial and other connections between the owners of the eight private yards.

With regard to smaller ships, a number of firms specialise in them and share the orders. To the outside observer there appears to be genuine competition.

Only Vickers-Armstrong and Cammell Laird now make submarines, Beardmore having dropped out.

Armour-plate.

The same authority who has just been quoted, records in "*Brassey's Annual*" for 1934 that "For armour . . . dependence is on John Brown & Co., Sheffield, and the English Steel Corporation—which is, it will be recalled, a combination of the steel interests of Vickers, Armstrong-Whitworth, and Cammell Laird." Beardmore, however, still manufactures a small quantity. There is no Government plant, and plainly no competition.

Tanks.

Tanks used to be made by Vickers-Armstrong and by Armstrong-Siddeley. Apparently Armstrong-Siddeley have ceased production. There is no Government manufacture of tanks.

Explosives and Chemical preparations.

For high-explosives, for the substances required for poison-gas, and for the other agents of chemical warfare, the only producing firm is Imperial Chemical Industries, who have a complete monopoly of the private trade.

Aircraft.

In respect of aircraft there are, as has been shown in evidence submitted to the Commission, a considerable number of firms who compete for Government orders. Their competition, however, is limited in its effect by the practice of the Government in two respects:

(a) The Air Ministry in a certain measure pursue the policy of "spreading" their orders, as the Admiralty do. Thus the Air Ministry say in official correspondence with the Auditor-General:

"The need for the expansion of the Air Industry on a sudden emergency has further always to be borne in mind. The Council do not suggest that this could not be accomplished under a competitive system, but in present conditions it would undoubtedly demand considerable latitude in spreading orders, with resulting diminution of the full effectiveness of competition."

(b) For reasons connected with progress in design, something like 80 per cent. of the contracts placed by the Air Ministry are given not by the system of competitive tender, but by the so-called "single tender."

There is no Government manufacture.

48. It results from the above statement that for many of the "most important and costly" forms of armament and ammunition there is either virtual or absolute monopoly, in the hands of a single firm, or of a small number of firms between whom the connections are close. In respect of a considerable number of these products there is not even the "check" of manufacture in Government Arsenals. Even where that "check" exists, its operation must be greatly limited by the universal Government practice of giving the greater part of the available orders to the private trade.

49. The advantages to the British Government which result from competition are, therefore, extremely limited, since the competition of foreign purchasers is in principle excluded, and since there is, in respect of most kinds of armament-production, no competition among home producers.

49a. It may perhaps be argued, however, that the British firms are "kept up to the scratch," and that their efficiency and enterprise are stimulated, by their competition with foreign firms in the world market for the orders of foreign Governments.

50. Competition on the world market is, however, considerably limited. I venture to call the attention of the Commission to the following points:

(a) There is undoubtedly a considerable degree of international combination in the armaments industry effected by means of interlocking directorships, share participations, the control of subsidiary companies, exchange of patents, price cartels, etc. There have been a number of well-known examples of close international "rings," e.g.,

- (i) The Harvey United Steel Co., Ltd.;
- (ii) An arrangement made between German, Austrian and Belgian Small Arms Manufacturers in 1905;
- (iii) The pre-war combination between explosive firms connected with the Nobel industries;
- (iv) The patent and market-sharing arrangements between Vickers-Armstrong and the Electric Boat Co. of New York, etc.

As an example of the international connections which big armament firms tend to build up, the foreign interests of Vickers-Armstrong are shown in Annex A.

(b) I do not desire to suggest that these international arrangements among armament firms have eliminated all free competition in the world market.

On the contrary, it is certain that in many armament transactions the competitive bidding of rival firms is very keen.

(c) But what is the world market? As I argued before, it includes none of the arms-producing countries, i.e., the greater Powers, who between them purchase the overwhelming majority of all the arms produced in the world.

(d) Nor, for the most part, does it include non-arms-producing countries which have military alliances with arms-producing States, since the General Staffs of allied armies desire to furnish their troops, as far as possible, with identical types of arms and ammunition, and thus endeavour to secure them from the same source.

(e) It may, therefore, be doubted whether the effective world market in which there is real competition includes more than one-tenth of the actual world expenditure on arms.

Conclusions.

51. It may thus be concluded with some confidence that:

(a) For British armament firms there is little competition in the home market, except for that afforded by Government Arsenals;

(b) This Government Arsenal competition does not exist at all in respect of many of the "most important and costly munitions of war," while in respect of others its operation is severely limited by fixed practice of Government in "spreading" orders;

(c) In the world market the total amount of orders is so relatively small that competition is not a very important factor.

52. The Commission will be aware that allegations have been made that private firms have in the past endeavoured to secure the reduction of the output of Government Arsenals, and thus to limit the competition to which they are subjected.

CHAPTER IX

Would the System of Government Monopoly increase National Taxation?

53. It has been widely asserted that the abolition of Private Manufacture would involve the country in a great increase in national taxation. This contention is usually supported by the following arguments:

(a) That under Private Manufacture competition keeps down both real costs and prices of armaments;

(b) That if Private Manufacture were abolished, the Government would be involved in vast capital expenditure for new national arsenals to supply its annual armament needs;

(c) That Private Manufacture furnishes the country with large reserves of arms-manufacturing capacity and thus ensures that at a moment of crisis production of munitions could be very rapidly increased. If Private Manufacture were abolished this loss of potential reserves would, it is said, have to be met in one of two ways:

(i) The annual manufacture of larger stocks of munitions. This would not only add a large sum to the annual defence Budget, but would in itself be wasteful, because stocks are liable to deteriorate or to become obsolete; or

(ii) The building of large reserve factories which would stand idle in time of peace, and the maintenance of which would be extremely costly.

54. These various arguments may be briefly examined in turn:—

Comparative Real Costs of Government and Private Manufacture of Arms.

55. There is obviously a *prima facie* case for thinking that the real cost of Government manufacture of armaments should be lower or, in any case, not higher than the real cost in private firms. For if Government establishments had a monopoly of all armament production they would be able to realise economies in the following ways:—

(i) From the centralisation of administration, design, testing, inspection, etc., which could be effected;

(ii) From the centralisation and co-ordination of purchases of raw materials and component parts of all kinds;

(iii) From the long distance planning of output and factory organisation which would be possible.

56. This *prima facie* case would appear to be conclusive unless actual experience had shown that Government establishments are in practice wasteful; that their delivery is slow; or that, in other ways, they are technically inefficient.

I have not been able to find any evidence of this description and I suggest to the Commission that, if it existed, it would have been given wide publicity by those who defend the system of Private Manufacture.

57. There is, however, a good deal of evidence which testifies that Government establishments are at least as efficient as private firms.

For example, repair work is notoriously a test of efficiency, for in no department of industrial activity is waste more liable to occur. Speaking in the House of Commons, the First Lord of the Admiralty said of the Royal Dockyards:

"We (i.e. the Government) believe that as regards repair work they are more efficient than private yards or at least they do it for less expenditure."*

Coming from so authoritative a source, this is a strong testimony to the efficiency of Government establishments. This testimony, which is fully confirmed by the Reports of the Murray and McKinnon Wood Committees, is further supported by the fact that it is the established practice in all the Fighting Services to send all repair work to Government factories and yards.

* Hansard, March 22, 1923, Col. 2882.

58. The same view is supported by the experience of the last war. The Commission will remember that in the statement of evidence submitted by Dr. Addison there appeared (Exhibit C) the Minutes of a Committee held at the Ministry of Munitions on 24th January, 1916. The members of the Committee were:—

Mr. S. H. Lever.
Hon. N. Charles Rothschild.
Mr. John Mann.
Mr. Frederick Palmer.

Paragraph 9 of the Minutes reads as follows:—

"9. *Conclusion re armament firms.*—The only conclusion that can be reached at present is that:—

(a)

(b)

(c) *The organisation and management of their works are inferior to those of other shell manufacturers.*"

59. There is further evidence in support of this view from individual engineering firms who during the War were first offered sub-contracts by private armament firms and afterwards undertook similar work for the Ministry of Munitions under the guidance of Woolwich Arsenal. Their view was that the methods of the Private Firms were cumbrous and wasteful, while many firms expressed great satisfaction with Woolwich methods.

60. There is much further evidence in favour of this view to be drawn from the experience of the national factories established by the Ministry of Munitions during the War. No doubt it is true that war conditions differ greatly from peace conditions, but there is no reason for thinking that the economies realised by the national factories in time of war might not in some measure be realised also in time of peace and that, therefore, the real costs of Government manufacture will tend to be less than those of manufacture by private firms.

Comparative Prices of Government made and Privately made Armaments.

61. There is an even stronger *prima facie* case for thinking that the prices charged by Government Arsenals for their products will be lower than the prices charged by private firms. This is true for the following reasons:

(a) Government establishments do not need to allow in their price for the cost of competitive advertisements or for other selling costs;

(b) As shown above, there is very little real competition between the private firms;

(c) Both nationally and internationally such competition as would otherwise exist has been highly restricted by the formation of rings and cartels.

(d) Thus the private firms are virtually in a monopolistic position and are able to charge prices that more than cover their full costs, including normal profits. Thus if Government establishments and private firms are equally efficient and have equal costs of production, it is to be expected that the Government will have to pay more when they buy from private firms. This is not an extra real cost in the sense that it uses up the real resources of the nation. But it is an extra charge to the budget, and in effect a ransom levied by the firms on the taxpayer.

62. This *prima facie* case is reinforced by the authoritative statements by the Murray Committee, Sir John Simon and others, which have been referred to above. In these statements it has been officially declared that Government Arsenals are required as a "check" on the prices charged by private firms and in order to furnish a standard for the quality of their products. Such statements are really decisive in themselves on the question of comparative prices. For obviously it cannot be argued

both that the taxpayer will obtain his armaments cheaper and of better quality from private manufacturers than from Government factories and that the cost of production and quality of goods made by Government factories provide a standard which can be used to control the prices asked and the quality of the goods supplied by private firms.

The Evidence of Actual Experience.

63. In view of current misconceptions, however, it may be useful also to consider such definite information as has been published concerning the actual prices charged respectively by Government factories and private firms.

64. It is, of course, true that this information is fragmentary and that, therefore, it can do no more than give certain general indications, the value of which I do not desire to overstress. It is a remarkable fact that, so far as I am aware, no comprehensive study of these comparative prices has ever been made. The most comprehensive official information on the subject comes from the United States of America. It may most usefully be summarised by reproducing extracts from official evidence given by the United States War Departments to Congressional Committees of Inquiry.

65. Experience in the United States of America.—

In 1915 the Secretary of the United States Navy, Mr. Daniels, said as follows:—

"Contrary to the popular idea, the Navy Department in what it manufactures does so, from a superdreadnought to a gallon of paint or a pound of powder, *cheaper* than the same can be purchased. This is particularly true of gasoline engines, electrical supplies, engines for dreadnoughts, shrapnel, clothing for marines and sailors, accoutrements, and a multitude of other articles required for the fleet and shore stations."

66. In a memorandum of evidence presented by the United States War Department on 21st December, 1934, to the Senatorial Committee presided over by Senator Nye, the following paragraph appears:—

"In time of peace, Government arsenals can manufacture at slightly less cost than commercial facilities. It has been estimated that this saving will average 11 per cent. The difference is due in large part to the following factors:—

(a) Arsenals make no allowance for profits.

(b) Overhead expenses are slightly lower in the arsenals and there are no selling costs.

(c) Depreciation charges are less in the arsenals because there is no question of future business. Sporadic Government orders necessitate private plants entering a relatively high depreciation charge against each order."

67. In evidence given to various Congressional inquiries certain other detailed information with regard to the comparative prices charged for specific articles has been published. I may, perhaps, summarise this evidence, which is taken from the official Congressional Proceedings, in the following table:—

Year	Article.	Government Arsenal Price (Including overhead charges).	Private Manufacture Price.
1912	3" Shrapnel Case	\$1.75	\$3.06
"	2.8" Shrapnel	\$7.94	\$17.50
1913	4.7" Shrapnel	\$15.45	\$25.26
1915	Smokeless Powder	\$0.36 per lb.	from \$0.63 to \$0.80 per lb.
1887-1916	Armour Plate	Average of 9 different official estimates of cost: \$247 per ton	Average price paid over this period to private firms: \$440

68. *British Experience*.—There has been much less official inquiry into this subject in Great Britain than in the United States. The information is, therefore, still more fragmentary and is, in fact, mostly derived from answers to casual parliamentary questions. A few scattered examples may be given:—

(a) In 1893 the Secretary of State for War declared that the price, including royalty, of machine guns made in the Ordnance Factory at Enfield "compared favourably" with the price paid to the private company;

(b) During the period 1889-1904 the average prices charged for rifles by the Ordnance Factories and the Birmingham Small Arms Factory were as follows:—

Royal Ordnance Factories.	B.S.A. Company.
Enfield.	Sparkbrook.
£3 3s. 2d.	£3 7s. 7½d.
	£4 3s. 9d.*

(c) Similar figures for other articles are:—

Sword-Bayonets.	
Enfield.	Private Firms.
7s. 11d.	11s. 5½d.

<i>Cavalry-Swords.</i>	
<i>Enfield.</i>	<i>Private Firms.</i>
19s. 8 $\frac{3}{4}$ d.	£1 2s. 9 $\frac{3}{4}$ d.†

(d) In 1907, Dr. Gilbert Slater, acting on behalf of the Woolwich Joint Conference on Discharges from the Arsenal published in "The Times" the following table of comparative prices:

Articles.	Woolwich.	Contract Work.
	£ s. d.	£ s. d.
18 pounder gun-carriages ...	343 14 4½	672 7 0
13 pounder gun-carriages ...	400 3 6	631 19 0
18 pounder limber carriages	99 0 1	197 5 6
13 pounder limber carriages	108 9 2½	182 16 0
18 pounder limber wagons ...	107 9 7	283 12 1
13 pounder limber wagons ...	118 5 5	184 0 0
Torpedoes ...	362 0 0	584 0 0

Although the system of Private Manufacture was at this time the subject of acute controversy, Dr. Slater's figures were never challenged.

(e) With regard to Armour Plate, there has never been any Government manufacture in Great Britain, but the spokesman of the Admiralty admitted to a Select Committee in 1912 that the prices charged by British armament firms for Armour Plate were higher than they should have been.

69. *French Experience*.—That French Government Armament Factories charge lower prices than French private manufacturers is shown by the following statement by M. Pierre Cot, who was Minister of Air in France in 1933-34:—

"In the course of the year 1933, at the instance of the Daladier Government, the French Ministry of Finance undertook a study of this question. It was sought to discover whether the French Treasury could, without incurring excessive charges, buy up and nationalise the private manufacture of arms. M. Georges Bonnet was Finance Minister, and he reached the conclusion that the acquisition was possible without laying any extra burden at all upon the French taxpayer. M. Georges Bonnet contemplated meeting the costs of acquisition through the issue of Treasury bonds; a similar system had been employed by the French State to liquidate part of the commitments involved in the reconstruction of the liberated areas. Interest and amortisation of these bonds would have been largely covered by the economies achieved in the arms-market, with the result that without extra expense the State would have become the owner of valuable factories, and thereby have brought off an excellent bargain. That, it is true, is not the main reason for the nationalisation of the arms manufacture, but it is not irrelevant to emphasise the fact that the

mere financial interest of the State points to nationalisation." (14th December, 1934.)

70. I submit that the above evidence justifies the conclusion that Government arsenal prices are likely, under a system of Government monopoly, to be lower, or at least no higher, than the prices now charged by private armament firms in time of peace.

71. *Experience in Time of War*.—The Commission has already received much evidence showing that during the last war the prices charged by private manufacturers were very much higher than those charged by Government arsenals and factories. It is indeed certain that the economies which resulted from the large scale establishment of national factories by the Ministry of Munitions, and from their competition with the private armament firms, amounted to hundreds of millions of pounds sterling.

72. A good deal of censure has been passed upon the private manufacturers for exploiting the needs of the Government and charging prices that were far above their costs of production. Some of this censure may be justified, but it must be said in defence of the private manufacturers that such over-charging was an almost inevitable result of the system then in force. For the private manufacturers were being called upon very greatly to expand their production. To do this they were obliged to build new factories and to sink large sums of capital in new and costly plant; they had no idea how long the war would last; it was the general view that it would be comparatively short; Government could give them no guarantee that they would receive orders for their new factories when the war was over; it was inevitable, therefore, that they should endeavour to recover their capital expenditure in the shortest possible time by charging the highest possible prices which Government could be induced to pay. The Government was in no position to bargain about prices, since their demand was far greater than all the available sources of supply could meet.

73. It was, therefore, almost inevitable that the private manufacturers' prices should have been greatly inflated during the early part of the last war, and if the same system obtained, the same thing would happen if another war broke out. This fact is a strong reason in favour of establishing Government monopoly in time of peace. For expenditure in time of war is on so incomparably greater a scale than expenditure in time of peace, that it would be good economy to adopt a system which is cheaper in war-time even if it could be shown that it was more expensive in peace-time.

Would New Arsenals be Required?

74. It is next argued that the abolition of private manufacture would involve the building by the State of a large number of costly new arsenals in all quarters of the country. To this argument I would reply as follows:—

75. The amount of armament plant required depends upon the armament demands of the Government. If a Disarmament Treaty were made, and particularly if this Treaty involved a large reduction or the total abolition of national Air Forces, the existing Government arsenals and dockyards would almost certainly be able to supply the nation's needs without great addition to their present capacity. If, however, expansion of their present capacity were required, there would be no difficulty in taking over at a valuation the specialised armament plant and factories, which private manufacturers now possess.

76. If, as is possible, the Government decided that the distribution and organisation of the existing private factories is inefficient, the specialised machinery could be placed either in the existing Government factories or in new factories to be built.

The Commission is no doubt aware that Woolwich Arsenal to-day employs approximately 8,000 men, while in 1918 it employed over 74,000. It has been estimated that the total number of men employed in private armament manufacture amounts, approximately, to 25,000. There is thus room at Woolwich for an expansion which would meet all the possible requirements of the Government.

* These figures are given in the Murray Report, Cd. 3626, 1907.

† Cited by J. Walton Newbold, *The Labour Leader*, July 31, 1913.

77. If new plant and machinery are, in fact, required, the capital expenditure could probably be wholly met, as, according to M. Cot and M. Bonnet, it could be met in France, by the economies which would follow from the lower prices which the Government factories charge.

This second argument, therefore, also appears to be without foundation.

The Increase of Reserve Armament Plant.

78. It is further argued that if private manufacture were abolished the Nation would lose the reserves of armament plant which the private firms now maintain, and that the Government would be obliged, in the national interest, to make good this loss in one of two ways:

(a) By increasing stocks of arms and munitions maintained in time of peace.

(b) By increasing the reserves of armament plant in Government arsenals and thus adding to the existing reserve machinery which stands idle. It is said that either of these plans will cost the Treasury large sums of money.

79. With regard to this argument, the following observations may be made:

(a) Of the two methods proposed, it may be assumed that the Government would desire to adopt the least costly. This would appear plainly to be the method of increasing reserves of machinery, since to increase stocks of arms and munitions is liable to be wasteful, since such stocks may easily deteriorate or become obsolete in type.

(b) How expensive would it in fact be to increase the reserves of armament plant in the way proposed? In Great Britain no official calculation has been made on this subject, as far as I am aware. But in the United States War Department's Memorandum cited above, it is said that the abolition of private manufacture would have the following effect:

"The enormous carrying charges on reservation facilities would more than double present costs, i.e., instead of costing 11 per cent. less, current supplies would cost from 90-100 per cent. more, than if procured commercially."

This calculation, however, is based on the assumption that the plant of private industries would not be used for producing war material in time of war and that, therefore, the United States Government would have to build in time of peace the additional arsenals required to furnish the arms and munitions needed by an army of not less than four million men. The initial cost of this new Government plant was estimated by the War Department to be \$1,000,000,000, and the annual maintenance charge 18 million dollars. This sum, the memorandum says, would be a net addition to the cost of national defence.

(c) It need hardly be said that no one in this country has proposed any such plan as here envisaged. It is, on the contrary, assumed that the Government would, directly war broke out, carry through an industrial mobilisation of private industry, as it did during the last war. In so doing, it would no doubt take whatever measures might be required:

(i) To secure effective Government control of all armament production.

(ii) To limit the profits made by private manufacturers.

In other words, there is no suggestion that all armament production should be confined to Government Arsenals in time of war; on the contrary, the abolition of Private Manufacture in time of peace would not affect the fact that the general engineering industry of the country would furnish the same reserves of non-specialised plant as it would if the present system continued.

(d) Thus the Government would only have to ensure that the country's total reserves of specialised armament machinery were the same after the abolition of Private Manufacture as those which now exist. If it added to national arsenals

the same quantity of such plant as now exists in private factories, the power of the country to expand armament production at a moment of crisis would remain at least what it is to-day.

(e) The question now to be answered, therefore, is whether such additions to the existing Government reserves of specialised machinery and plant would involve very heavy additional expenditure to the Exchequer.

(f) When this question is discussed, it is usually assumed that the specialised armament plant now maintained by private manufacturers cost the taxpayers nothing, and that when it is idle the private manufacturer pays the cost.

If it were true that the private manufacturer paid the cost, it would be a most unjust return for the service of armament manufacture which the Government encourages him to undertake. Some part of paying this cost may, perhaps, be paid by the private manufacturers; at least they make frequent complaints on the subject. The nation, however, pays much the greater part. Thus:

(i) Government pays direct subsidies to help to meet the maintenance charges on idle plant, e.g., in 1928 a payment of £90,000, was made to five British companies which manufacture armour plate;

(ii) These charges are also allowed for in fixing the higher prices paid to private firms;

(iii) Some armament enterprises receive a privileged position, e.g., Imperial Chemical Industries has a monopoly of many products in the British market. This monopoly enabled Imperial Chemical Industries to show a large increase in profits during the three worst years of the world depression. It can hardly be doubted, therefore, that British citizens pay an important indirect subsidy for the increased national security which Imperial Chemical Industries provides and for the increased reserves of plant for war production which it maintains;

(iv) It must be remembered further that the private manufacturer is furnished without payment with the results of Government research. This, no doubt, is a further "disguised" subsidy of an important kind.

(g) In view of these facts, the next question to be answered is this: Is there any reason for believing that the cost of maintaining additional reserve plant in Government arsenals would be greater than the present cost of inducing private manufacturers to keep such plant by the direct and indirect subsidies just described?

In answering this question, the following points appear to be relevant:—

(i) To keep extensive specialised plant standing idle means locking up capital in unproductive investment. The cost of so doing must depend on the rate of interest to be paid. Government borrows at a lower rate of interest than private firms. This, of course, is offset by the fact that the taxpayer has to bear the risk of future loss instead of a private firm doing so; but there is probably some real saving to the Exchequer.

(ii) The plant must be housed in a factory on which a private firm must meet current charges, rent, interest, etc. The Government already possesses large arsenals, sites, and numerous empty shops on which no charge except depreciation would need to be paid. For a certain time after the reserve plant was transferred to Government arsenals, an economy would thus be made.

(iii) The plant must be kept in good condition by unskilled labour working under expert direction. It is probable that the Service Departments could, without extra salary and wage charges, furnish both the labour and the expert staff required from persons already in their employ whose time is not now fully occupied.

Thus it seems probable that the costs of interest, rent and administration would all be less on reserves of idle armament plant kept in Government factories than on similar reserves kept by private firms.

Note.—In this discussion I have omitted the point that the maintenance charges on reserve plant may partly be paid for by the profits on arms manufacture for the export trade. This is discussed in paragraph 106 below.

(h) The above considerations justify the conclusion that the abolition of Private Manufacture would not involve the Exchequer in heavy expenditure for the maintenance of additional reserves of arms-manufacturing machinery and plant.

79a. For greater clarity, the above argument may be summarised as follows: If £2 worth of reserve equipment has to be held in any event for the needs of war-time, it makes no difference whether it is held in Government arsenals or by private firms; because, if it is held by private firms, the Government will have to pay for it in the prices charged by the firms or by direct or disguised subsidies of different kinds.

Against this, however, must be set the point that if this plant can be used by private firms in its spare time for making arms for export or "peaceful" goods, but can *not* be so used by Government, then there is *pro tanto* a real economy in the system of Private Manufacture, because the plant has to be kept idle for a smaller proportion of its time. How far this is a real advantage of Private Manufacture is discussed in paragraphs 106, 192 and 193 below.

Conclusion.

80. It follows from the above argument that there is no sound reason for thinking that the abolition of Private Manufacture would increase either the real burden on the nation or the cost of national defence to the Exchequer. On the contrary, it appears probable that:

- (a) the real costs of production,
- (b) the prices charged to Government, and
- (c) the cost of maintaining reserve-plant for war-needs

would all be less under a system of Government monopoly than they are under the existing system.

CHAPTER X

The Alleged Advantage of Private Manufacture in Promoting Progress in the Design of Armaments

81. One of the principal contentions in favour of Private Manufacture laid before the Commission by earlier witnesses is that the incentive of private enterprise and private gain tends to promote progress in design.

Thus Sir Eustace d'Eyncourt stated that he desired "specially to draw attention" to "the necessity of ensuring that war material should be of the best and most efficient design and construction", and he argued that "right through peace and war you have to keep up the whole idea of keeping the initiative in invention". He further declared that "in the ordinary way the government arrangements are very clogging for developing a new idea", and that in consequence "most of the great inventions come from private individuals".

Similarly, Mr. Douglas Vickers in 1931 claimed that in this respect "a private firm had great advantages over a State factory. A private firm had to go out into the world and meet competition, and they got to know in this way what was up against them and what they had to beat. This sharpened their wits".

How the Stimulus of Private Profit is alleged to work.

82. Three arguments—or, more accurately, three variant expressions of one argument—are advanced in favour of the view that the stimulus of private gain tends to promote progress in design.

(a) It is said that private firms must obviously have the keenest possible desire to secure and launch new inventions, since there is an unfailing, an immediate and virtually an unlimited, market for new types of armaments. This is more true of armaments than of any other product, for the reason that new or powerful weapons very quickly drive less efficacious weapons out of use. The private manufacturer of arms can thus increase his business by securing new patents, or by improving the power and efficacy of existing weapons, more certainly than he can increase it by any other means.

(b) It is said that in order to retain their clientèle, a private armament firm must always strive to keep ahead of rival firms in the improvement of design, since Governments insist on obtaining the most efficient weapons, irrespective of cost.

(c) It is said that if the Government purchased all warlike material from State factories, the result might be complete stagnation in respect of design, since the State servants in Government factories,

being without the profit motive, would have no incentive to change or improve existing types. In modern conditions, where science is changing not only individual weapons, but perhaps the whole character of warfare, with great rapidity, such stagnation in design might lay the nation open to defeat in a future war.

Do the interests of the Private Manufacturers and the interest of the Nation in this matter coincide?

83. It is usually assumed without argument by those who put forward the above contentions that in the matter of design the interests of private manufacturers and of the nation will always coincide. But it is not *a priori* certain that this is true, for the interest of a private firm is profit, while the interest of the nation is security.

It may, therefore, be worth while to examine the possible conflict of these public and private interests, and to do so on the basis of the various hypotheses which the Commission have to consider, i.e.:

- (a) Under conditions of international anarchy and armament competition;
- (b) In time of war;
- (c) Under a system of organised international disarmament and peace.

84. *International anarchy and armament competition.*—It is plain that in the conditions of international anarchy the private manufacturer has as a rule a great incentive to secure new patents or to improve the weapons which he possesses. For example:

(a) The acquisition of the patent for the Maxim machine-gun was the true foundation of one of the most powerful armament corporations in the world. The financial return which may follow from the acquisition of such a patent is shown by the fact that the British Government, during the war of 1914-18, furnished its troops with no fewer than 250,000 machine-guns, at an average cost of probably not less than £100 apiece.

(b) Similarly, the private manufacturer has an interest in making improvements and developments in existing types of arms, in order to increase their complexity and their cost. In the armaments industry there is an almost limitless field for improvements of this kind. A good example is furnished by the development during the last twenty years of the 6-inch gun cruiser. When war broke out in 1914, the standard light cruiser of the British fleet was the Birmingham type, of 5,440 tons displacement. Its cost was

approximately £350,000. The modern equivalent of the Birmingham is the Leander, a 6-inch gun cruiser launched in 1933. The Leander has only approximately 2,000 tons greater displacement than the Birmingham, and on paper its armament is much the same. But the cost of the Birmingham was £1,627,819.* The cost of the propelling and auxiliary machinery had increased from £135,000 to £435,000; while the cost of the guns had increased from £50,000 to £500,000.

85. Thus as a general rule private firms have a great financial inducement both to promote new inventions and to make improvements in existing types of arms. But there are also two other points which they have to consider.

(a) They naturally desire to find as many purchasers as they can. They therefore take out patents for their new inventions in all foreign countries where they can hope to induce the Government to buy.

(b) They must sometimes find that it is to their interest to suppress a new invention or improvement. The invention may simplify, instead of complicating an existing weapon; it may reduce its cost; it may make a large and costly plant obsolete; or it may render useless some other weapon more costly than itself. This would happen, for example, if the present experiments in torpedo attack carried out by aircraft and by small motor speed-boats were to render obsolete the super-dreadnought type of armoured ship. It frequently happens in ordinary industrial experience that inventions are suppressed. Dr. Addison declared to the Commission that it happens no less frequently in the armament industry, and that even in time of war there were many valuable ideas which were not adopted until the Ministry of Munitions took them up.

Now it may obviously happen that on both of these two points the interests of private manufacturers and of the nation may be in conflict. A new weapon may bring profit to the manufacturer but danger to the country. I may perhaps cite a practical example. The accepted Government view is that command of the sea is no less important than it was in pre-aviation days, and that our Battle Fleet of armoured ships is the essential factor in giving us that command. If this be true, the new Hadfield "Relieved-Base" armour-piercing shell might, in the hands of an enemy, be a serious menace to British safety. It is, therefore, in the interest of the nation that that shell should be kept secret for the use of the British fleet alone. But in execution of their duty to their shareholders, the Hadfield company have patented their shell in eight foreign countries. The same remarks apply to a new torpedo for use from aircraft which has been introduced by Whiteheads, and which that company have offered for sale to all Governments abroad.

86. Thus, in conditions of international anarchy the interests of the private manufacturers may conflict with the interest of the nation in the following ways:

(a) The private manufacturers may desire to suppress an invention which it would be to the military advantage of the nation to develop.

(b) The private manufacturers may desire to develop an invention which it would be to the military advantage of the nation to suppress.

(c) The private manufacturer may desire to sell to all foreign governments the new weapons which he may produce, although it may be—and usually will be—to the military advantage of the nation to keep these weapons as a secret for itself.

87. *In Time of War.*—It is not clear that even in time of war the interests of the private manufacturers and of the nation in the matter of progress in design will be the same. The History of the Ministry of Munitions says as follows:—

* A small part of this difference was no doubt due to a change in price-levels, but not enough seriously to diminish the value of the illustration given.

"In times of peace the War Office had relied almost entirely upon the Ordnance Factories and the armament firms for the origination of patterns which needed the skill of the expert combined with the manufacturer's knowledge of workshop practice. When hostilities began, these same factories were the sole source of output. The interests of immediate production were paramount, and experimental work took a second place . . . Moreover, small experimental orders must necessarily have been less attractive to armament makers than the contracts which were being placed for manufacture on a large scale."

A possible conflict of interest may thus arise. The military Command will desire that any possible new weapon which will give them the advantage of surprise shall be developed. But, at a time when the private manufacturer finds an unlimited demand for everything he can produce he will, almost certainly, make more profit by large scale contracts for standard products which require no change of plant, material, or organisation, and no other incidental expenses of any kind. We cannot, therefore, trust the profit-motive to operate in time of war as a stimulus which will certainly lead to maximum military advantage in respect of progress in design.

There is thus a case for holding that on grounds of theory the interest of the Government in new inventions will be keener than that of private firms, and that, in so far as private firms introduce inventions and improvements they will do so rather for patriotic reasons than for the sake of additional profit. This case is strongly supported by Dr. Addison's evidence to the Commission.

88. *Under a System of Organised International Disarmament and Peace.*—But the conflict of interests between the nation and the private manufacturer in respect of progress in design is most evident under a system of organised disarmament and peace. Under such a system, indeed, their interests would be, in all cases, diametrically opposed.

The purpose of a disarmament treaty is two-fold:—

(a) To establish a permanent international equilibrium of strength by the stabilisation of the armaments of the signatory States at the lowest level at which agreement can be reached.

(b) To relieve each signatory State, by a system of international control, from its present anxiety that neighbour States may gain a secret advantage in military strength.

To make it possible to achieve this two-fold purpose, it is essential that competition in quality of armaments should be prevented. To do this would require a special clause in the Disarmament Treaty prohibiting the signatory States from introducing improved or more powerful weapons. The Polish Government submitted proposals for this purpose to the Disarmament Conference, and they also suggested a special machinery of control.

Such arrangements would obviously promote the interests of every nation which, like Great Britain, intended loyally to observe the obligations of the Disarmament Treaty, and which, therefore, must desire that other Governments should also do the same. But they would strike a serious blow at the interests of private manufacturers. For, as I said in paragraph 34 (d) above, the best hope of expanding their business which private manufacturers would have under a Disarmament Treaty would lie in new inventions and in changes of pattern and formula, which might induce Governments to replace their existing permitted stocks of war material. Private manufacturers would thus have an inducement to defeat the purpose of the Disarmament Treaty at the cost of damaging the interests of every signatory nation, including their own, which loyally observed its terms.

* History of the Ministry of Munitions, Vol. IX, Part II, pp. 45-46.

An obvious example of how this might happen is furnished by the provisions of the Versailles Treaty which forbade Germany to maintain ships of more than 10,000 tons displacement. The Commission will remember that the German designers invented processes by which their 10,000 tons ships had an equal strength in horse-power, armament, etc., with all previous vessels of 13,000 to 14,000 tons. Qualitative competition of this kind would both upset the equilibrium which a disarmament treaty is intended to establish, and would involve Governments in the useless expenditure of great sums of public money.

88A. *Conclusions.*—It may be concluded, therefore, that in many different ways the working of the profit motive in the armament industry does not coincide with the interest of the nation in respect of progress in design.

Have Private Firms a Better Record than Government Departments in respect of Progress in Design?

89. It must next be asked whether it is true on the facts of history that private firms have been responsible for more inventions and improvements than Government arsenals or departments.

So far as I am aware, no systematic historical study of this matter has ever been made by any Government or private authority. As far as I have been able to assemble the facts, I have not found sufficient justification for the broad statements that are made in favour of the private firms. The authors of these statements usually assume that all credit for any invention or improvement associated with the name of a private firm must be given to that firm. But, in fact, it is at least open to question whether in many cases the credit should not go to others.

In this connection I draw attention to certain of the most famous cases on which are based the claims made for private manufacture in this respect.

(a) Sir W. G. Armstrong was a distinguished inventor of naval ships and guns. Before he founded the enterprise which was destined to become one of the greatest armament firms in the world, he had been in the employment of the Government at Woolwich Arsenal.

(b) Similarly, Mauser left the service of a German State factory to manufacture the rifle by which he made his fortune and his fame. He had designed this rifle while he was in Government employ.

Should the credit for the production of these two inventions be given to the private firms they founded or to the Government arsenals in which they received their training, learned their technique and, in a certain measure at least, made their plans?

(c) During the last war the paravane was invented by Commander Burney, who took it to Vickers to be exploited. Commander Burney was a naval officer and an employee of the State. In what sense can the firm of Vickers claim credit for his invention? Can it be believed that if there had been no private armament firms he would not have taken his paravane to a Government arsenal? Can it be doubted that a Government which bought Sir W. G. Armstrong's guns from Elswick would have refused to allow him to make them if he had remained at Woolwich?

90. It has sometimes happened that private firms have exploited for their profit new designs made in Government arsenals and research departments. A famous case is that of the Buffington-Crozier disappearing gun carriage. General Buffington, then Chief of Ordnance in the United States Army, designed and constructed a gun at Government expense in Government gun shops, spending hundreds of thousands of dollars in experiments to perfect the gun carriage. The Bethlehem Company then made a secret contract with General Buffington and his co-inventor, Captain Crozier, and patented the gun carriage in many foreign countries. The facts concerning this case were exposed in the American House of Representatives by Congressman Claude H. Tavenner in 1915. In what sense can the Bethlehem Company claim credit for this invention?

91. These few examples show that it is exceedingly difficult to justify any general claim that private firms have a much better record than Government Departments in respect of progress in design. This was true even before the War; it must be much more true to-day when public expenditure on Government armament research is on a far greater scale and when the results of that Government research are frequently placed at the free disposal of private firms.

How Progress in Design is effected.

92. Apart from this unsubstantiated historical contention that private firms have a "better record" than Government Departments and arsenals, is there anything in the nature of progress in design which supports the argument now being discussed?

Progress in design means change in the nature, type or construction of weapons and munitions which renders those weapons and munitions more powerful for the destruction of enemy troops or their defences, communications, etc.; which renders these weapons or munitions more mobile or easier to use; or which makes them simpler in construction or less in cost.

Such progress may be brought about by change so considerable as to justify the use of the word "invention"; or it may be brought about by gradual minor improvements in existing types.

Invention may mean the production of some entirely new kind of weapon, e.g., the tank, or poison-gas; or so great an increase in the efficiency of an existing weapon as to render all previous models obsolete as, e.g., the Maxim gun made the Gatling and Nordenfeldt machine guns obsolete. Such inventions are frequently made by men of genius not regularly engaged in armament work.

Improvement, as distinct from invention, is the result of the gradual adoption of minor new devices, suggested as a rule by the experience of those who are regularly engaged in the work of armament research, experiment, repair or manufacture.

93. I call the attention of the Commission to the following points:—

(a) Progress by either method usually results from scientific research and practical experimentation. Modern armaments are so complex and the precision required so great that both research and experimentation are very expensive. Prior to 1914 a considerable part of the research and experimentation carried out was done by private firms; now there is no major military Power in the world that does not devote to this purpose sums amounting, at least, to hundreds of thousands of pounds a year.

(b) Research and experimentation give the best results when they are carried on in close conjunction with the practical work of manufacture for large scale production and with the work of repair.

(c) Experimentation often requires the active help of the Armed Forces and the use of Government ranges, training and testing grounds, etc.

94. At the present time, both armament firms and the Government concern themselves with promoting progress in design.

I have not been able to discover any comprehensive published data concerning the amount of research and experimentation which is done by private manufacturers, or what sums they devote to these purposes. The following points, however, may be noted:

(a) All armament firms keep drawing offices for design proper on a larger or smaller scale.

(b) Some armament firms, including the more important, devote considerable sums to research and experimentation. Sir Robert Hadfield, himself a distinguished scientist and researcher, has described the research work done by his firm. According to "Brassey's Naval Annual", most warship-building firms spend something on research.

Imperial Chemical Industries maintain research laboratories.

Most aircraft firms do little, if any, research, but a number of them do a good deal of experimentation with new models. Part of this experimentation is financed by public money.

(c) Most of the results obtained by Government Research Departments are placed at the disposal of the private firms.

(d) The private firms receive facilities from the Services in their experimental and testing work, e.g., the use of ranges, training-grounds, troop co-operation, etc.:

(e) Some of the private firms have an obligatory option on inventions made by persons in their employ:

(f) Private firms, of course, accept, and indeed are extremely anxious to secure, new inventions brought to them by those not in their employ.

95. The Government also takes part in work of promoting progress in design in the following ways:

(a) It maintains research stations and establishments at a large cost to the Nation. Details of the work done in research and experimentation are shown in the following tables:

(i) *Army:*

(For the year ended 31st March, 1933).

Vote 9.			
Warlike Stores.			
Service	Grant. £	Expenditure. £	
A. Establishment for Research Experiment and Design.	617,000	614,000	
B. Inspection of Warlike Stores.	402,000	400,595*	

(ii) *Navy.*

Appropriation Account.

Vote 6.

Scientific Services.

<i>Scientific Research and Experiment.</i>			
	£	£	s. d.
N. Salaries, Wages and Allowances.	163,913	162,237	9 5
N.N. Salaries of Analytical Chemists.	15,919	15,173	10 3
O. Maintenance of Research Establishments and Laboratories, and Miscellaneous Expenses of Scientific Research.	89,748	76,209	15 9
<i>Mine Design Department, Torpedo Experimental Station, Signal School and Anti-Submarine Establishment.</i>			
P. Salaries and Wages of Civilian Staff.	73,353	71,628	4 0

£342,933 £325,238 19 5†

(iii) *Air.*

Extract from the Memorandum on the Air Estimates presented to Parliament by the Secretary of State for Air in 1934.

"The provision for experimental services (shown in Appendix I) is £1,428,000, an increase of £43,000 on the figure for 1933. There is an urgent demand for further research and development work which can no longer be postponed.

"The gross expenditure on the Royal Aircraft Establishment at Farnborough amounted to £385,791 1s. 3d., £325,000 of which went for experimental and research work."‡

(b) The Government take an option on the inventions made by persons in the employ of Ordnance Factories and other Government establishments;

(c) They also receive inventions from outside sources;

(d) They stimulate the flow of inventions by giving rewards to those who put forward useful

ideas. In the years 1932-33, these rewards amounted to the following total:

	£
Army	—
Navy	10,502
Air Ministry	19,263
Total	£29,765

(c) Woolwich Arsenal maintains a large Drawing Office which keeps in close touch with the research stations under the control of the War Office.

(f) The Admiralty maintain a Royal Corps of Naval Constructors who receive and approve suggestions made by private firms and decide upon their incorporation in new vessels to be built. The Royal Corps of Naval Constructors is responsible for the designs and construction of all new vessels for His Majesty's Navy.

(g) The Air Ministry, on the other hand, consider that design is better left to the competition of private firms. In consequence, they have not established a Royal Corps of Aeronautical Designers.

(h) All repair work, the importance of which in connection with design has been stressed above, is done in Government establishments, i.e., in Ordnance Factories, Royal Dockyards and Royal Aircraft Stations.

96. In the light of these facts, it is now necessary to consider whether there is really adequate ground for the contention that the abolition of Private Manufacture would cause stagnation in design.

I submit, for the consideration of the Commission, that there is no adequate ground for that contention. The following points appear to support this view:

(a) The research and experimentation now done by Government Departments are overwhelmingly more important than that done by private firms, for the reason that the equipment, plant, laboratories and annual income at the disposal of the Government Departments are all much greater than private firms can possibly afford.

(b) If it were desirable, the most successful research experts, designers, etc., now attached to private firms could be moved to Government establishments when the private firms were liquidated.

(c) There is no reason to think that inventors would be any less ready to bring their inventions to Government Departments than they are to bring them to private firms. It may be that while the system of Private Manufacture exists the inventors retain the hope of securing higher remuneration from private firms than Government will give. But if there were no private firms they would, obviously, take their inventions to the Government instead. If Sir W. G. Armstrong had not been able to exploit his ships and guns in private trade, can it be seriously believed that he would not have stayed at Woolwich and made them there?

(d) If the Commission consider that the inducements to inventors at the present scale would be inadequate under a system of Government monopoly, they could recommend that the rewards given should be more generous.

(e) For the work of research, experiment and design, it is plain that centralisation has great advantages. As said above, the system of a Government Corps of Designers is already adopted by the Admiralty and, in a considerable measure, by the Army; while Mr. McKinnon Wood has laid before the Commission cogent reasons for thinking that the Air Ministry might with advantage adopt the same system. It is, indeed, obvious from the very nature of research and experimentation that the pooling of ideas is more likely to produce the best results than a system by which small groups of persons carry on their work in competition with each other, each working with smaller plant and resources than they require, all of them keeping their results secret from each other.

* House of Commons Document 32, 1934, p. 19.

† House of Commons Document No. 31, 1934, p. 20.

‡ House of Commons Document 33, 1934, p. 12.

(f) It can hardly be doubted that the Government will be quite as ready to accept from persons in its own employ, or from private inventors outside, new ideas and inventions, as they now are to purchase these ideas and inventions in the form of finished goods from a private firm. It may have been the case in pre-war days that Government methods acted as a "clog" upon development and change. But that can hardly be true to-day when so much public money is devoted to promoting progress in design. Indeed, to doubt that Government Departments will be as anxious as any private firm can be to secure improvements is to throw aspersions upon the public spirit, scientific attainments, and organising power of the distinguished men who are employed by the three Fighting Services for the express purpose of promoting progress in design.

97. *Conclusions.*—The above argument may be summarised by saying that to-day there is no difference in the methods adopted by Government Departments and by private firms for promoting progress in design, except that the Government Departments have far greater resources at their disposal and the advantages which result from the centralisation and pooling of effort. The agents of Government Departments may not have the stimulus of personal profit in quite so high a degree as some of the agents of a private firm; but it may be doubted whether this stimulus of private profit is really more powerful than the search for military advantage which must inspire all ranks of Services which, like the Army, the Navy and the Air Force to-day, are responsible for preparing for the contingency of another war in which the superiority of weapons may be decisive. It is what Sir Eustace d'Eyncourt described as the international "Derby" race among nations for the lead in armament invention which, to-day, is the true stimulus to progress in design, and I submit that, while this "Derby" race continues, the nation could rely on the public spirit and the personal interests of its servants to ensure that no true opportunity of military advantage should be lost.

War Experience in respect of the matter of Progress in Design.

98. The above conclusion is confirmed by the experience of the War of 1914-18. To support this contention I offer the following quotations:

(a) An extract from the History of the Ministry of Munitions:

"Administrative methods for ensuring good quality play an important part in the successful provision of warlike stores. The relations between research, design, production and test are so intimate that ultimate effectiveness depends upon the facilities provided for a ready co-operation between the officers concerned with each of these tasks.

"When in the summer of 1915 a ministry of supply was set up to produce the equipment for the growing armies, responsibility for design and the standards of inspection were retained by the War Department. By the end of the year, it had been found to be essential to success in fulfilling the enormous munitions programme for 1916 and 1917, that these duties should be united with that of supply. Accordingly the Ministry of Munitions became responsible for design and the standards of inspection in December, 1915. At the same time, the technical duties so transferred were concentrated in a strong military department within the Ministry in order to safeguard the interests of safety and efficiency.

"The immediate results of the transfer were to expedite decisions upon which depended the whole of the supplies for the summer campaign of 1916, and to render more elastic the system for securing changes needed to facilitate production and to make the most of the country's waning material resources. . . . The maintenance of good quality in so large an output and under stringent economic conditions was a matter of considerable difficulty.

The administrative problem of combining military and commercial knowledge in a single Department of State was not easy to solve. In spite of these difficulties the technical achievements of the new Department were remarkable. New weapons were developed with success. Existing patterns were modified with rapidity to meet the changing exigencies of the war. The general quality of the munitions supplied improved steadily, so that by the end of the war British troops could place even greater confidence than before in the safety and efficiency of their equipment."*

(b) An extract from "The Great Munition Feat," by Dewar.

"Woodwich, through its immense expert and practical knowledge of munitions of war, was expected to test and advise on all manner of new inventions, which were offered first to the War Office and Admiralty and later to the Ministry of Munitions. It had incomparable facilities for that purpose."†

(c) An extract from the Report of the McKinnon Wood Committee, presented to His Majesty's Government in March, 1919.

" . . . It will still be vitally necessary for the Government to continue to carry out experiments with new forms of weapons and new developments in the material for war, introduced by scientific research, and therefore a Factory or Factories, either owned by the Government or Private trade, will be required for this purpose. We consider that the arguments in favour of the retention of a Government Arsenal in peace time are overwhelming It is of value that repair work should be undertaken in the Factory that is most closely in touch with design This can best be effected by both the main Design office and Factory being under Government control.‡

The McKinnon Wood Committee went on to say:—

"In all probability . . . private Design will largely decrease in future as armament manufacture ceases to be a subject of commercial production."§

This prospect did not alarm the McKinnon Wood Committee and they made no recommendations for encouraging or maintaining private Design, research or experimentation.

(d) An extract from the History of the Ministry of Munitions.

Discussing the necessity for the maintenance of a Government Arsenal, the History says:—

"Some such establishment seems essential as a source of the specialised knowledge of manufacture required for Government inspection and control and as a headquarters for the improvement of Design."||

The Value of Secrecy in Progress in Design.

98A. The argument set forth above provides, in some measure at least, an answer to the contention that Private Manufacture is essential to that progress in design on which, as it is said, national security depends.

But, it does not provide the whole answer. There is another aspect of increasing importance.

In setting forth the arguments in favour of a Government Arsenal, the McKinnon Wood Committee, in the report cited above, says as follows:

"In the first place secrecy, which is often a great essential in armament development, can more easily be preserved in a Government establishment."¶

* History of the Ministry of Munitions. Vol. IX Part II, pp. 106-7.

† Dewar, The Great Munition Feat. pp. 59-60.

‡ Cmd. 229, 1919, p. 8.

§ Ibid. p. 12.

|| History of Ministry of Munitions. Vol. VIII, p. 1.

¶ Cmd. 229, 1919, p. 8.

The History of the Ministry of Munitions uses almost the same language: "Secrecy," it says, "which is often essential in armament development is more easily attained in a Government Factory."

99a. These judgments result from the experience which many Governments have had of the working of the present system, under which new armament developments produced in one country are at once made available to the world at large.

It has sometimes even happened that private manufacturers have stolen new ideas or inventions developed in Government Arsenals, or Research Stations, and have sold them abroad. It has more frequently happened that private manufacturers, in the ordinary course of their business, have sold ideas and patents to other countries which their Governments and their peoples believed to be a national secret.

A remarkable example of the working of the present system is furnished by the sale of British Aircraft to Germany in 1934. Mr. McKinnon Wood has pointed out that, as the result of this sale, the German Government, whose competition is now forcing His Majesty's Government greatly to increase the British Air Force, obtained the benefits of prolonged research and experimentation carried out by a British Government Department at a very heavy expenditure of public money.

Another example, no less important from the present point of view, is furnished by the patenting in foreign countries of the Hadfield "Relieved Base" armour-piercing shell, referred to in paragraph 85 above.

CHAPTER XI

The Alleged Advantages of Foreign Trade in Arms

100. The next important argument in favour of the present system is based upon the alleged advantages of an export trade in arms.

Language is sometimes used by those in authority which would lead to the conclusion that it should be an important object of national policy to increase our export trade in arms, and it has been admitted that diplomatic missions abroad receive instructions to assist the agents of arms manufacturers in their efforts to accomplish this end.

The value of Great Britain's exports of arms.

101. It will be useful to preface the discussion of this point by a statement of Great Britain's present export trade in arms. It is set forth in the following tables:

Conclusions.

99. I submit, therefore, the following conclusions:

(a) There is no peculiar merit in the system of Private Manufacture which secures progress in design which Government Departments could not secure if Private Manufacture were brought to an end.

(b) Government Departments have greater resources, larger staffs and better equipment for research and experiment than private firms.

(c) They have an even keener stimulus to keep ahead of foreign rivals.

(d) Under Government monopoly new armament secrets would not be broadcast to the world, unless the Government decided that it was to their advantage that foreign countries should have them too. Thus, under conditions of international anarchy and armament competition, the Government would not lose, as it so often loses now, the differential military advantage which new inventions give.

(e) These advantages of Government monopoly are even greater in time of war than in time of peace.

(f) When international anarchy has been replaced by a stable system of disarmament and organised peace, the abolition of Private Manufacture would remove a factor likely to upset the balance of armed strength established by the Disarmament Treaty. For while under the Treaty, Governments would have every interest to safeguard the balance of strength established and to prevent new qualitative improvements calculated to render valueless the quantitative limitations which the Treaty laid down, private manufacturers would have an interest to circumvent or defeat the purpose of the Treaty in every way.

NAVAL ARMAMENTS.*

Exports of New Ships from the United Kingdom.

						War Vessels (including Machinery and Armament).	
						£	
1925	...	...	...	...	...	14,354	
1926	...	...	...	...	...	19,300	
1927	...	...	...	...	...	45,388	
1928	...	...	...	...	...	5,143,150	
1929	...	...	...	...	...	3,820,250	
1930	...	...	...	...	...	707,400	
1931	...	...	...	...	...	600,000	
1932	...	...	...	...	...	525,000	
1933	...	...	...	...	...	254,928	

* Brassey's Naval Annual, 1935, p. 347.

EXPORTS OF ARMS.*

(GUNS, MACHINE-GUNS, MOUNTINGS, RIFLES, SIDE-ARMS AND OTHER MILITARY STORES)

	1927.		1928.		1929.		1930.		1931.	
	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.	Value 1,000 £	Per £	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.
Total of exports for foreign countries.	550.1	55.2	628.7	50.4	1,252.0	68.0	902.4	63.5	1,101.1	79.2
Total of exports for British countries.	446.0	44.8	618.1	49.6	588.2	32.0	519.5	36.5	288.7	20.8
General Total	996.1	100	1,246.8	100	1,840.2	100	1,421.9	100	1,389.8	100

* League of Nations Statistical Year-book of the Trade in Arms and Ammunition, 1933.

EXPORTS OF AMMUNITION.*
(SHELLS, TORPEDOES, SMALL-ARMS AMMUNITION, PROPELLANTS, EXPLOSIVES)

	1927.		1928.		1929.		1930.		1931.	
	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.	Value 1,000 £	Per cent.
Total of exports for foreign countries.	800.6	36.9	1,299.9	45.4	1,141.1	43.3	834.6	40.1	702.4	45.1
Total of exports for British countries	1,368.9	63.1	1,561.9	54.6	1,492.2	56.7	1,243.9	59.9	855.7	54.9
General Total	2,169.5	100	2,861.8	100	2,633.3	100	2,078.5	100	1,558.1	100

* League of Nations Statistical Year-book of the Trade in Arms and Ammunition, 1933.

AIR ARMAMENTS.*
EXPORTS OF AEROPLANES, ENGINES AND SPARES.

Year.	Aeroplanes.			Engines.			Spares.	Value.
	Number.	Value.	Average Value.	Number.	Value.	Average Value.	Value.	
		£	£		£	£	£	£
1924 ...	188	438,000	2,330	580	449,000	775	314,000	1,201,000
1925 ...	148	345,000	2,330	492	439,000	895	362,000	1,146,000
1926 ...	150	391,000	2,610	266	296,000	1,110	430,000	1,119,000
1927 ...	140	205,000	1,460	380	396,000	1,040	484,000	1,085,000
1928 ...	358	451,000	1,260	432	349,000	1,050	527,000	1,327,000
1929 ...	525	804,000	1,530	1,148	504,000	440	852,000	2,159,000
1930 ...	317	601,000	1,890	552	540,000	980	909,000	2,060,000
1931 ...	304	779,000	2,560	363	413,000	1,140	668,000	1,860,000
1932 ...	300	641,000	2,140	452	467,000	1,035	633,000	1,742,000
1933 ...	234	475,000	2,030	409	448,000	1,100	542,000	1,466,000
10 years' average.	271	513,000	1,900	507	430,000	850	572,000	1,515,000

* Annual Report of the Director of Civil Aviation, 1933.

101A. On the above tables the following observations must be made:—

(a) The total average export of armaments in the period up to 1933 was approximately £6,000,000 per annum. The considerable expansion of world armaments since 1933 has probably increased this total; but the increase of exports is almost certainly not out of proportion to the increase of armaments manufactured for the home Government.

(b) The total of £6,000,000 includes the exports of civil aircraft. I have been unable to secure exact figures, but it appears improbable that the proportion of civil aircraft exported is more than one-twelfth of the military exports.

(c) The rough average of £6,000,000 may be considerably increased if armament firms receive orders for the larger types of warship. As the table shows, this is an occasional, but not a frequent, event.

(d) The total arms exported amount to approximately one-fifth to one-sixth of the total arms produced in Great Britain.

(e) Of the total arms exported, approximately one-third go to British dominions and possessions abroad, i.e. the value of the total exports of arms to non-British destinations may be taken as approximately £4,000,000 per annum, or one-eighth to one-ninth of the national production.

The alleged advantages of arms exports.

102. It is said:—

(a) That the export of arms gives employment to British workers and thus helps to pay for the large imports of food and raw materials without which the nation cannot live.

(b) That by spreading the overhead charges of arms-producing plant over a larger output than there would be if there were no export trade,

exports reduce the prices which the purchasers of arms—i.e. the British Government and foreign Governments—must pay.

(c) That by employing plant in arms production in peace time, it adds to the reserve of manufacturing capacity available for armament expansion if war occurs.

(d) That if war occurs, the Government can requisition the arms being manufactured for export, and thus increase its potential reserve supplies.

103. Before these advantages are examined it is necessary to consider an implicit assumption on which they are based.

It is assumed that if Private Manufacture were abolished, Great Britain would lose the whole of her present export trade in arms. This assumption rests on no foundation of experience or reason. On the contrary:—

(a) It is certain that the Overseas Governments of the British Commonwealth would continue to purchase their arms from national arsenals in Great Britain. Thus the maximum loss of export trade would amount to two-thirds of the present total, i.e. approximately £4,000,000 per annum. This is about 1 per cent. of Great Britain's manufactured exports of all kinds.

(b) As will be argued later, there is no reason for thinking that, if a National Arms Board of the kind proposed were in fact established, foreign governments would cease all their purchases of British arms. It may well be argued that such governments would prefer to deal with the agents of a non-profit-making public body rather than with the agents of private firms. If there were any purchases by foreign governments, the percentage of export trade lost would be even lower.

I now proceed to examine in turn the four alleged advantages of this export trade in arms.

104. *The employment given by the export trade in arms.*—It is true that the export of arms furnishes employment to a considerable number of British workers. But it is not true that if the exports of arms ceased, the workers who made them would remain permanently unemployed. The economic effects would be as follows:—

(a) In the long run, there would probably be equivalent employment in other exports, or in making other goods for home consumption.

(b) In the period of transition employment would be reduced; but relatively to the total unemployment at present existing, the reduction would be trivial.

(c) If the transition were made in a period of expanding trade, the reduction would be nil.

(d) If the arms exported are used in war, their effect in reducing the potential market for other British exports may outweigh their own value.

105. It must be added that if Great Britain gave the example of abolishing Private Manufacture, the political effect might be such as materially to improve the chances of securing international agreement for Disarmament. The ultimate economic effects of this would be beneficial and most important, and this hope must be counted as a real, though, of course, a purely hypothetical, offset against the immediate economic loss, if any.

106. *The "spreading" of "overhead charges."*—In most statements of the argument that the system of Private Manufacture spreads the "overhead charges" on the manufacture of arms and thus reduces prices, there is considerable confusion of thought.

(a) The reduction of overhead charges on any given product depends on two things:

(i) How nearly the factory or other unit of production approximates to the optimum size of a productive unit in a given industry.

(ii) Whether the units engaged in production are working up to full capacity or not.

(b) The analysis given above may be recalled. If the Government desires to keep a permanent reserve of plant standing idle, it must pay for it, whether the plant is in Government or private factories. But in addition there may be in private factories plant which is sometimes used for making armaments for the home Government and sometimes in making armaments for export. If this gives the plant more continuous employment, a real economy results. But it must be noted that, if Private Manufacture were abolished, Government factories might be able to manufacture for export (cf. paragraphs 174 and 175 below).

(c) Further, it must be remembered that overheads will not only be reduced if a firm undertakes the manufacture of arms; they will also be increased by the cost of the specialised selling organisation which the armament trade requires. The foreign purchasers will presumably as a rule pay for this in the prices they give for the arms they buy; but perhaps not always. In any case, the Commission will recall that in 1915 the larger armament firms laid great emphasis on their heavy expenses in this respect.

It is thus fair to conclude that the advantage due to the "spreading" of "overheads" under Private Manufacture is at best very slight, and in all probability amounts to nothing at all.

107. *The alleged increase of reserve capacity for armament expansion in time of war.*—It is evidently true that if engineering plant is engaged in making arms for export when war begins, the immediate increase of arms-production will be *pro tanto* greater than if no export trade existed. But, as shown above, the total volume of export is relatively small. The additional plant due to exports which will be available at a time of crisis will be the plant needed to make £4,000,000 worth of armaments a year. This is equivalent to a daily

output of approximately £10,950 worth of arms. In the last war consumption was at the rate of hundreds of thousands of pounds worth per day.

Moreover, as I will endeavour to show in a later section, the output of government factories can be more rapidly expanded at a time of crisis than that of private factories. It would therefore certainly not disadvantage the nation from the military point of view to keep in Government factories an additional amount of plant equivalent to that now used for the export trade. The cost of maintenance of the plant required for an output of £4,000,000 per annum would be extremely small.

108. *The requisition of war material on order for foreign Powers when war breaks out.*—It is, of course, true that if war breaks out, the Government of an arms-producing country can requisition for its own requirements the arms and ammunition being manufactured for foreign purchasers. In 1914 Great Britain requisitioned four "Dreadnoughts," other smaller ships of war, and a certain quantity of small arms and ammunition.

The following points should, however, be noticed:

(a) The amount available in the early stages of the war will not be the whole annual output of arms for export, but only a part of that output. How large a part it will be will depend on the "period of production" of the various arms which are requisitioned. It will in any case be a small amount relatively to war needs.

(b) The diminution of potential reserve stocks, due to the loss of the power to requisition arms on order for export, could therefore be remedied by a very small annual expenditure, the cost of which would probably be offset by the economies resulting from the abolition of Private Manufacture.

(c) In practice, the military advantage of the policy of requisition may be offset by important disadvantages. For since, in the Prime Minister's words, "the Covenant is the sheet anchor of British foreign policy," Great Britain will never be an aggressor in any future war and will, therefore, only engage in large-scale hostilities when she does so in co-operation with the other Members of the League in defence of the Covenant. In this case the requisitioning of arms ordered for foreign powers might mean keeping back supplies for ultimate use by British troops which require a long training before they can use them, instead of furnishing the said arms to allied troops who could use them at once.

(d) The requisitioning of arms may create political complications of a serious kind. Thus, the taking over in 1914 of two "Dreadnoughts" which were destined for the Turkish Government undoubtedly created great resentment in the Turkish Empire, and some good judges hold the view that it was a most important factor in determining Turkey's decision to take part in the war on the side of the Central Empires.

Conclusions.

109. As the result of the above discussion, I submit the following conclusions for the consideration of the Commission:

(a) That the loss of employment due to the cessation or diminution of the export trade in arms would be less serious than is often believed.

(b) That the advantage accruing from the "spreading" of "overheads" under Private Manufacture over exports of arms is relatively very small.

(c) That the addition of reserve manufacturing capacity due to the export trade is negligible in comparison with war requirements; and that the loss of such reserve capacity, if any, could easily be made good by additions to the existing plant in government factories at a very low cost to the nation.

(d) That the military advantages of requisitioning arms on order for export may be offset by important military and political disadvantages.

CHAPTER XII

Private Manufacture and the Expansion of Armament Production in Time of War

110. Of all the arguments deduced in favour of the system of Private Manufacture, the most important is that which relates to the expansion of armament production in time of war. It was this argument which inspired a recent official statement to the effect that to abolish the private firms would be to "strike a vital blow to our own real security."

111. This view has been shared by many Governments and has led them to accept anomalies which, otherwise, it is most improbable that they would have approved. Two examples may be given:

(a) In the Proceedings before Senator Nye's Senatorial Commission of Inquiry, a letter was read addressed on 8th May, 1923 to Mr. L. L. Driggs, the President of the Driggs Ordnance and Engineering Company of New York, by the Assistant Secretary for War in the United States Government. The letter reads as follows:

"It is the desire of the War Department to encourage the manufacture of munitions in the United States by commercial manufacturers. The War Department would be willing to release to your company the designs of our latest anti-aircraft material, with the exception of certain secret portions, provided you had a contract with a foreign Government for a production quantity of anti-aircraft material which you would agree to manufacture in the United States. You can readily appreciate that an order from a foreign source for only two or three of these new 'anti-aircraft materials' would only serve to disclose to the foreign power the latest United States developments in anti-aircraft artillery, and would not develop any munitions manufacturing capacity in your plant. The size of the order will, therefore, have to receive the approval of the War Department before any design information is released to your company.*"

This letter shows that the War Department of a Great Power was so anxious to increase the "munition manufacturing capacity" of a private firm that it was prepared to "disclose to a foreign Power the latest United States developments (i.e., secret Government developments) in anti-aircraft artillery," provided it was satisfied that the foreign Power (N.B.—any foreign Power) would avail itself of these developments in large amounts.

(b) An extract from a Memorandum on the Air Estimates contained in the British Air Ministry's "Appropriation Account," 1932, reads as follows:

"The Council regard it . . . as a matter for satisfaction that Great Britain has of recent years, as a result of the close partnership between the Air Ministry and the industry, led the world both in performance and in development of the new technique. This is reflected in the growing volume of foreign orders with the advantageous reaction on domestic prices indicated in paragraph 9 above."

This is equivalent to saying that the potential enemies of Great Britain are receiving the benefit of all the technical improvements which have given us the lead in military aviation and which are due in great part to the Air Ministry's research.

Nor are the Air Ministry content merely to give "the industry" the benefit of their research; they also assist them in securing foreign orders. The Chairman of Hawker Aircraft, Ltd., Mr. Sopwith, spoke to the Annual General Meeting of his shareholders on 2nd July, 1935, as follows:

"A strong measure of support has been received from the Air Ministry and the Department of Overseas Trade in all our foreign business, and we shall spare no effort further to build up this side of our activities."

Thus the Air Ministry, like the War Department of the United States, are willing to give the benefit of their technical improvements to potential enemies provided, in return, there is in their own country an increased manufacturing capacity which will enable them to expand the output of armaments in time of war.

112. In this chapter of my statement of evidence I desire to examine in the light of pre-war and war experience this officially accepted doctrine that the possession of a private armament industry enables a country to expand its armament production more rapidly than it could expand it if the manufacture of arms were a Government monopoly.

At first sight the argument in favour of this doctrine appears persuasive. Armament production, in many of its processes, requires specialised machinery, specially trained workers and specially expert managerial skill. The mechanism of most arms and most kinds of munitions is highly complex and a high standard of precision is required; it seems obvious, therefore, that a system which increases the number of factories where armament manufacture is understood and where there are the necessary machinery and trained personnel *must* also increase the power of the country to expand production in time of war. The more widely peacetime production is "spread," the more numerous the units which understand the work and which could, therefore, be switched over to arms production when war begins, the more, it would seem, the total potential increase is bound to be.

113. In reality, however, this simple statement of the matter begs the question.

The amount of specialised armament plant in any given country will consist of:

(a) the amount required to produce the annual output of armaments for consumption at home and for export abroad;

(b) the unused reserve plant for the maintenance of which in idleness the Government elects to pay.

As I have shown above, this amount will be the same whether the plant is situated in Government arsenals or in private factories. In the case of Great Britain, the only addition due to the system of Private Manufacture which might be lost if that system were abolished, is the small amount of specialised plant required to make the arms which Great Britain at present exports, and which she might cease to export under a system of Government monopoly.

It follows that the problem as to whether or not the possession of a private armament industry will increase the power to expand armament production in time of need, reduces itself to three simple questions:

(a) Will a Government arsenal, with a given amount of plant, specialised machinery, special labour and special managerial skill, expand less rapidly than a private armament factory with the same amount of plant, specialised machinery, etc.?

(b) Is a private firm better adapted than a Government arsenal for mobilising and bringing into production the general engineering resources of the country? Is it better equipped for instructing the ordinary non-armament firms how to carry out the manufacturing processes required; for furnishing them with the drawings, jigs, gauges, etc., which they will need; and for distributing, co-ordinating and assembling the many various products of their work?

(c) Is a private firm better adapted than Government Departments for building the new factories and installing the new plant required to produce those kinds of war material for the production of which all the existing Government and private manufacturing resources of the country are inadequate?

* Hearings before the Special Committee investigating the Munitions Industry, United States Senate, Part 2, Exhibit No. 206, p. 530.

I will attempt to answer these questions in the light of British experience before and during the War. For this purpose I will base the discussion on the assumption—on which all my evidence is based—that in order to meet the needs of the nation in future war it would be necessary both to expand Government arsenals to their maximum capacity, and to bring into armament production the whole of private industry that is capable of making the necessary adaptations in its plant.

Comparative Expansion of Government Factories and Private Armament Firms.

114. Are there grounds for thinking that a private armament factory with a given amount of plant, etc., will expand its production in time of crisis more rapidly than a Government arsenal with an equal amount of plant?

I submit to the Commission that the answer to this question is as follows:

(a) There is an *a priori* case for believing that Government arsenals will be able to expand more quickly than a private armament firm. Indeed, they obviously have certain natural advantages. Thus:

(i) It is easier for Government arsenals than for private firms to prevent their men from enlisting in the armed forces.

(ii) Since the work of Government arsenals is more highly specialised than that of private firms, the general level of skill, both among workers and managerial staff, tends to be higher. "Dilution" of labour can, therefore, be carried further.

(iii) Since there is no question of private profit, the workers can be asked to make greater efforts, and arrangements for longer hours, etc., can thus more easily and more rapidly be made.

(b) A Government Committee which examined the armament industry and the Government Factories and Workshops under the Chairmanship of Sir G. H. Murray in 1907, declared as follows: "Their (the Ordnance Factories) primary function is to provide a reserve of production power capable of being utilised to the full in times of emergency. It is admitted on all hands that the ultimate productive power of the private industry of this country is greater than that which is possessed by the Government establishments; but the trade takes time to adapt itself to an increased demand and the arsenal must be adequately equipped for tiding over the first few months of a critical period."

They therefore recommended a plan which, in their view, would enable the arsenal "to increase its output without loss of efficiency to the greatest possible extent in the shortest possible time."

In other words, the Murray Committee believed that, under the organisation which they proposed, and which, in fact, was adopted, Government arsenals could expand more rapidly than private firms.

(c) But according to the evidence given by General Martel to the McKinnon Wood Committee in 1919, the man-power of Woolwich Arsenal had been reduced before 1914 below the level at which maximum expansion was possible. General Martel declared, indeed, that the number of skilled men was on the low side; that the shop staff was so low that it was barely possible to carry on, even in peace time; that this was a serious handicap when rapid expansion was needed; that the Ordnance factories were left with machinery to meet a moderate expansion but not more.

General Martel gave evidence that the total number of men in the Ordnance Factories had been reduced to approximately 10,500, although the Chief Inspector of Ordnance Factories had declared that 14,600 was the minimum required for efficiency.

In other words, the Ordnance Factories were less well prepared in 1914 for rapid expansion than the Murray Committee had believed they would be.

(d) Nevertheless, so far as it is possible to make any comparison, there are grounds for thinking that the Government establishments expanded at least as rapidly and as much as private firms during the War.

As the History of the Ministry of Munitions makes plain, no statistics were obtained until 1918 as to the numbers of workers engaged on different classes of armament work, nor was there any exact computation either of the total number of armament workers or of the separate categories of armament workers engaged on the production of war material before the War. But the following figures may perhaps serve to give a rough indication of the comparative expansions that took place:

Total employed in Private Firms:

August, 1914 (estimate made by Ministry of Munitions)	50,000
13th April, 1915 (total employed by 12 principal armament firms)	62,924

Total employed in Ordnance Factories:

August, 1914	10,500 (approx.)
13th April, 1915	36,393

Woolwich Arsenal:

	<i>Total Employed.</i>
June, 1914	8,500
31st December, 1914	23,000

The figures of expansion in certain specialised departments of Woolwich Arsenal may be compared with the expansion effected by two comparable private firms.

Woolwich Arsenal—Filling Factories:

	<i>Total Employed.</i>
1st August, 1914	1,580
31st December, 1915	11,000

Woolwich Arsenal—Small Arms

Munition Factories:

1st August, 1914	666
5th October, 1918*	8,027

Birmingham Small Arms Company:

August, 1914	3,500
November, 1918*	13,000

Kynochs:

1914	3,410
1915	10,798

I do not suggest that these figures can be used to justify any definite conclusion; but if I think they suffice to show that there is at least no proved case for the view that in the last war private manufacturers effected a greater expansion than the Government arsenals on an equivalent basis of plant and personnel.

(e) The judgments of those in charge of munitions production during the War lend at least some support to the view that the Government arsenals expanded more rapidly than private firms. Mr. Lloyd George's declarations concerning the success of Woolwich Arsenal are well known. Speaking of Woolwich Arsenal a well-known authority, Mr. Dewar, says:

"We could not have won the war except for its resources and ingenuity in the earlier part of the struggle."

Many other such judgments could be cited.

Bringing non-specialised industry into armament production.

115. I now turn to the second question set forth in para. 113 above: whether private firms are better adapted than Government factories or arsenals for bringing into armament production the non-specialised engineering resources of the country. To put this question in the language of to-day: should the private armament firms be entrusted with the industrial mobilisation of the nation for the production of arms and ammunition in case of war?

On this question the experience of the last war furnished evidence of the utmost importance.

* No earlier figure available.

116. For at the beginning of the war the task of industrial mobilisation was left in the hands of the private armament firms. This was the result of a deliberate policy adopted on the recommendation of the Murray Committee referred to above. The governing passage of the Murray Committee's Report is as follows:

"It is admitted on all hands that the ultimate productive power of the private industry of this country is greater than that which is possessed by the Government establishments. *But the trade takes time to adapt itself to an increased demand, and the Arsenal must be adequately equipped for tiding over the first few months of a critical period. After that period, all important as it is in war, private enterprise may be trusted to meet the national requirements to a large extent.*"

117. No effort was spared to give an honest trial to this plan of making the established armament firms the agents for developing the arms-producing resources of the country. Thus before war broke out:

(a) The share of orders given to the armament firms was greatly increased. It was a consequence of this that, although armament expenditure rose from £59,000,000 in 1907 to £77,000,000 in 1914 the man-power of the ordnance factories was reduced by nearly 40 per cent.

(b) The armament firms were given special assistance, including subsidies to enable them to increase their plant.

(c) The Government established very close relations of co-operation and consultation with the armament firms.

118. Nor did this special treatment and encouragement end when war began. On the contrary:

(a) Orders for arms and munitions were given exclusively to the established armament firms on the Admiralty and War Office lists.

All other firms who offered to help were instructed to apply to the armament firms for sub-contracts.

(b) The armament firms were allowed to make sub-contracts free from inquiry, supervision or review by the Government.

(c) They were given special privileges with regard to the recruitment of skilled labour. The Labour Exchange organisation was even made "to go beyond its normal functions and attempt to persuade employers to surrender their skilled men to the armament firms." (Hist. of Ministry of Munitions.)

(d) The technique of armament manufacture was kept a close secret of the armament firms; for this purpose even Government factories were closed to enterprising engineers who wanted to find out if their plant could not be used for munition production. This secrecy was first impaired when Lord Kitchener threw open Woolwich Arsenal in April, 1915.

(e) The armament firms were given almost any price they asked for, in the belief that higher prices would induce greater output. The History of the Ministry of Munitions says that many of the prices paid were "fantastic."

(f) The plan adopted was not abandoned after a brief or unfair trial. On the contrary, it was adhered to from August, 1914, until May, 1915, in spite of many demands from Government Departments, spokesmen of the engineering industry and public opinion that a new system should be tried.

119. Yet in spite of these great efforts to make it succeed, the plan of using the private armament firms to adapt the engineering resources of the country for war-production was a total failure. Dr. Addison has furnished the Commission with such a full account of this failure, and with so many detailed figures demonstrating its extent, that it is unnecessary for me to dwell on it. I only offer as further evidence some additional contemporary judgments.

(a) Lord Kitchener, Secretary of State for War, in the House of Lords on 15th March, 1915:—

"The output" (of arms and munitions) "is not only not equal to our necessities, but does not fulfil our expectations, for a very large number of our orders have not been completed by the dates on which they were promised."

(b) Mr. Bonar Law, in the House of Commons a week earlier:—

"I do think that we have not mobilised the industries of the country in the way in which it was possible to mobilise them for the purposes of the war."

(c) The "Times" on 6th April, 1915:—

"It is certain that the national resources have not been utilized to the full. Indeed, no attempt has been made to do so."

(d) Mr. Lloyd George, the first Minister of Munitions, in June, 1915:—

"To be quite candid, the armament firms were inadequate to the gigantic task cast upon them not merely of organising their own work, but of developing the resources of the country outside."

(e) I also offer the mature judgment of an impartial author who has written an important study of the production of munitions during the war, Mr. Dewar:—

"During the first 10 months of the war we were struggling to get sufficient munitions despite the fact that neither Labour nor Capital, neither employer nor employed, was organised on a great national basis. . . .

"The more one looks into that organisation (the Ministry of Munitions) in detail and surveys it as a whole, comparing it with the *vector of the first 10 months of effort, the stronger becomes the conviction that the munition feat could not have been carried out on the old lines. . . . Those who expected the War Office to deliver the goods working under the old system, and in the midst of the labour and industrial chaos of 1914-15, expected a miracle in munitions.*" ("The Great Munition Feat.")

120. The failure of the armament firms has brought upon them a great deal of censure for their rapacity and lack of public spirit. It is usually forgotten that there is a good deal to be said in their defence. Thus:—

(a) Before 1914 they had concentrated principally on Admiralty work, for the reason that it was primarily Admiralty orders which they received. The Navy did not require, and had never expected to require, such an immensely increased output of guns and ammunition as that which was required for the Army.

(b) Not even the War Office itself had foreseen how immeasurably requirements of guns and ammunition would be increased. They had given the private firms no warning to prepare for such expansion as in fact was needed.

(c) Undoubtedly the private firms accepted orders far beyond their power to fulfil. But in August and September, 1914, when their contracts were made, it was exceedingly difficult for them to foresee what expansion they might be able to effect under the stimulus of war.

(d) By the end of the war in 1918 they had succeeded in making an immense contribution to the total armament with which the British forces were supplied.

121. But these mitigating considerations do not affect the fact that under the system in force the Government relied upon the private armament firms to fulfil their promises; that in consequence it failed itself to take the steps required to increase the output of arms; and that when the promises of the manufacturers were not fulfilled, disaster inevitably followed in the field.

This disaster was not confined to the British armies, for Mr. Lloyd George has shown that the private armament firms also

accepted "orders on a gigantic scale from the Russian Government." Mr. Lloyd George goes on to say:

"When they accepted these Russian contracts they must have known that they had not the faintest chance of executing them in time if they were to deal fairly with their British orders. Their failure to execute these orders was largely responsible for the disasters which befell the Russians in the campaign of 1914-15."

122. The truth is that in so far as mitigating circumstances may provide excuses for the individual firms concerned, they only furnish further condemnation of the general system by which the national fate was made dependent on the efforts of a small number of private undertakings.

The causes of the failure of the private firms.

123. The following are the principal causes of the failure of the private armament firms as agents for industrial mobilisation.

124. *Their internal organisation.*—There seems to be no doubt that, owing, perhaps, to the privileged position which they had held before 1914, and to the exceedingly high profits which they were able to earn,* the armament firms had allowed their internal organisation to fall below the highest standards of industrial administration.

125. *The sub-contracting system.*—There is evidence both from the two Ministers of Munitions, and from many representatives of the engineering industry, that the system of "sub-contracting" was a total failure. The main reasons for this failure were as follows:

(a) As a rule, the armament firms did not pass on to sub-contractors any substantial proportion of the high profits they were making. On the contrary, "it was at least a common complaint that . . . the contracts that were sub-let . . . were given on terms that left a very moderate margin of profit." (Hist. of M.M.) Or, as one representative of the engineering industry reported to the Ministry of Munitions, "the large armament firms are taking the last drop of financial blood from these small contractors."

(b) This fact increased what was perhaps the natural antipathy of the sub-contractor for the direct contractor. But apart from this financial consideration, there is general evidence that manufacturers desired on patriotic grounds to work directly for the State, and resented the intervention of the armament firms.

(c) The natural reluctance of the armament firms to teach sub-contractors the technique of armament production. The records show that during the early stages of the War the armament firms were constantly preoccupied with the danger that they might be creating new competitors in the armament market who would continue production when the War was over.

(d) The armament firms were not only making sub-contracts; they were simultaneously trying to extend their own factories. To do this they had to attract skilled labour from the other engineering firms in their own regions, i.e., from the firms to whom they tried to let sub-contracts. Their efforts in this direction were strongly resented by the other firms. This was a further obstacle to the smooth co-operation upon which successful sub-contracting must depend.

(e) Still more important was the inability of the private firms to furnish the instruction and assistance which the sub-contractors needed.

For the most part, the work given to sub-contractors in the early part of the War was not difficult. If they had received adequate drawings, specifications, jigs and gauges, with one or two skilled workers to supervise their work, they could

have put their factories into production without undue delay. But the armament firms could spare no skilled workmen; they had no drawings, jigs, etc., ready; and they could not provide the necessary experts to make them. In consequence sub-contractors had to work out their own methods of production, which often involved a delay of many months.

For this failure the armament firms were not to blame, for they could not be expected to prepare drawings, jigs, etc., in time of peace. But for that very reason this was a most serious inherent weakness of the system of sub-contracting, i.e., of relying upon private firms to mobilise the general engineering resources of the country for war production.

126. Sub-contracting was the method by which it had been intended that the private firms should mobilise the potential resources of the country; and when it failed, there was no hope that the private armament firms could produce adequate results by other methods. But apart from the failure of sub-contracting, the whole conception of relying on a limited number of private firms was proved to be inadequate and wrong.

Although Dr. Addison has dealt with them at length, it may perhaps be useful for me to summarise again the main reasons why this was true.

127. *Labour.*—Dependence on the armament firms made it impossible to use to maximum advantage the skilled, semi-skilled and unskilled labour resources of the nation. This was because:

(a) A census of available labour of various kinds was required.

(b) It was necessary to curb the patriotism of skilled workers who desired to enlist in the armed forces.

(c) The transference of labour from one trade to another, from one firm to another, and from the armed forces back to industry was necessary.

(d) It was necessary to negotiate with the Trade Unions for the "dilution" of labour, i.e., for the relaxation of rules to which the Trade Union movement attached the highest importance as social safeguards.

All these functions could only be performed by Government. It was obviously impossible for private firms to perform them.

128. Not only so, but the system of reliance on the private armament firms increased the great inherent difficulties of these tasks in various ways:

(a) The factor of private profit was a most serious disadvantage. It increased the reluctance of other employers to agree to labour transference to the armament firms. It greatly increased the reluctance of the Trade Unions to abandon or mitigate their protective regulations. Lord Kitchener and the History of the Ministry of Munitions give decisive evidence that the establishment of national factories "led the way in dilution" for the reason that "there could be no suggestion of profit being made except for the nation."

(b) The competition of the private armament firms for skilled labour reduced the whole labour market to chaos.

129. *Raw Materials.*—Dr. Addison has similarly given evidence to show that:

(a) The competition of private manufacturers for raw materials vastly inflated prices, and thus prevented the most economic use of such supplies as were available. For this reason adequate armament production was impossible until the Government had monopolised raw material supplies and placed them under a scheme of national organisation and distribution.

(b) In respect of many essential raw materials the total available peace-time supplies were wholly inadequate for war needs. The additional quantities required could only be adequately produced in national factories and on a non-profit-making basis.

* The Commission will recall Dr. Addison's evidence that Mr. Jack of Hadfield's declared to the Ministry of Munitions that "the War Office in peace time had given Hadfield's millions of pounds worth of orders at 25 per cent. profit, which meant really 33 per cent. profit." (Minutes of Evidence, 4th and 6th Days, Appendix, p. 122.)

130. Machine Tools.—In respect of machine tools, as in respect of labour and raw materials, two problems arose:

(a) Securing the best use of available supplies.
(b) Increasing supplies where they were insufficient.

(a) While the private firms were in charge there were only two plans which could be adopted for using the available supplies:

(i) Using the machine tools in the factories where they were already situated, i.e. sub-contracting, which proved a failure.

(ii) Moving machine tools from factories where they were not being used to most advantage to the new factories which the armament firms were building. This created the utmost possible friction; and it was in fact impossible to secure any effective redistribution of machine tools until the Government had taken charge and a national census had been made.

(b) There was no means of ensuring the increased supply of machine tools* and the most advantageous allocation of the current products of the machine tool trade, except by government control.

Thus in respect of machine tools also, the system of reliance on the private firms inevitably failed.

131. Sub-division of industrial processes.—The immense increase in the scale of armament production showed another inherent weakness in the system of reliance on the private armament firms. In his War Memoirs, Mr. Lloyd George says:

"In place of the War Office method of contracting with a few experienced firms for supplies of finished articles, a method which had worked satisfactorily in peace time but had proved quite inadequate to this war, the Ministry of Munitions had to concern itself directly with the production of every raw material and intermediate stage of manufacture of each component in its munitions supplies."

It soon became evident that great economies could be made by the sub-division of manufacturing processes and the distribution of production of different components over a larger number of different factories.

This plan had the following advantages:—

"The effects of State Control of the munitions industry soon became visible in the introduction of economies in labour and material through the spread of mass production, in increased standardisation, and increased sub-division of manufacturing processes, which allowed the employment of automatic machinery and of unskilled labour, and in the pooling of manufacturing skill and experience." (Hist. of M.M.)

This highly developed sub-division of manufacturing processes was obviously too large-scale an operation to be handled successfully by the private armament firms.

132. Co-ordination of Production.—Nor were the private firms capable of creating the centralised authority required to conduct the co-ordinated assembly and inspection which was required before war material could be delivered to the Government.

The advantages in this respect of a system of Government monopoly have been well stated by M. Pierre Cot, who writes as a member of a French Cabinet which made a special study of the subject. He says:—

"To be able to assure their war production in case of need all States plan their industrial mobilisation in advance. Everywhere, secretly or openly, plans are drawn up by the General Staffs. I cannot imagine a single General Staff that would ignore this capital problem. These plans are more or less complete. They rest on an inventory of the economic and industrial resources of the country. A chart of the 'war potential' is constructed. It is on the basis of this potential that

the plans of industrial mobilisation are framed. Groups, or 'families', of factories are constituted. These groups in time of war will work together. One factory will provide the raw material, another the half-finished products; another will proceed to the assembly of parts and construction. These groups radiate round a central factory which is the real *matrix* and which, as a rule, is responsible for the assembly and construction. These *matrices* are usually represented by a factory which in peace time has worked for national defence. Let us take an example. In time of peace a particular aeroplane factory produces the entire aeroplane. In time of war it will be responsible only for the most delicate task, namely the final construction of the aeroplane and the production of a few parts; but it will receive in the form of finished products all the parts whose assembly will create the aeroplane. These parts will be produced in the factories or group of factories best qualified by their peace-time production for their construction. There is no need to pursue this demonstration further. Everyone realises how much more effectively and accurately industrial mobilisation could be planned if these factories, the master-units of the group, were State factories. That is self-evident. It is no use telling us that private industry is needed for industrial mobilisation. Such a proposition is at the same time true and false; true, in that private factories manufacturing no munitions in time of peace figure in the units in the industrial mobilisation which are formed by munition-factories and, false, in that it would be to the general interest to nationalise such factories."

133. Instruction of non-specialised engineering firms.—Under the heading "sub-contracting," I have reminded the Commission that the armament firms were neither well equipped nor always well disposed for the task of bringing outside firms rapidly into armament production. They were naturally and, from their own point of view, rightly, eager to protect trade secrets. There is much evidence that this policy of "mystery" was applied to a point at which it gravely hindered the expansion of production. In September, 1916, Sir William Weir laid a memorandum before the War Cabinet in which he said:

"Time and again the Ministry has been told that certain munitions require such high skill that only certain firms of long experience can undertake the supply, and time and again the Ministry, through the magnificent response of engineering firms of all classes, has disproved the statement." (Hist. of Ministry of Munitions.)

It was only after Lord Kitchener opened Woolwich Arsenal that "the barriers of mystery" were broken down and that "the whole resources of expert knowledge were thrown into a common stock." "The armament firms had now nothing to lose by following suit." (Hist. of Ministry of Munitions.)

This natural reluctance to create competitors was in itself a most serious objection to the plan of leaving private firms to mobilise the reserve capacity of the country.

134. But apart from this objection, war-experience showed that the task of instructing non-specialised engineering firms could be carried through much better by Government agencies.

In fact a great deal of this work was done by Woolwich Arsenal. Woolwich had been allowed to make no preparations in time of peace to perform this function. It had:

(i) "No expert staff available for training new firms";

(ii) "The inadequate and overdriven staff could not be spared to inspect the plant of potential contractors."

(iii) "No adequate stocks of manufacturing equipment existed, since the expansion of production which called for vast quantities of drawings, specifications and gauges was quite unexpected." (Hist. of Ministry of Munitions.)

* I leave out of account the purchases made from the United States, which were wholly inadequate to the national requirements, and which do not in any case affect the present argument.

Nevertheless Woolwich Arsenal was able to accomplish a great deal. Thus Mr. Dewar says:

"Of the thousands of controlled firms and sub-contractors making munitions in 1916 and 1917, the vast majority—probably something like 90-95 per cent.—had never turned out a component of gun or shell, etc., before the War. The little firms, having no machines worth mentioning, could not undertake elaborate tooling operations—'carvings in steel'—far less could they turn out a complete shell or gun. But, once they were marshalled, and their work in some degree co-ordinated, they could turn out in quantity some small munition part or component, such as pins, screws, etc., and thus render valuable service."

"It was in guiding or advising these newcomers, innocent of war and its material, that the Royal Arsenal, with its extraordinary variety of output, its experience, and its prompt advice, was so valuable."

"People not only came to Woolwich from all quarters to observe, and inquire as to some point in munition work they were doubtful about; Woolwich had distributed many of its experts throughout the country; we found in factories all over the North and elsewhere, through the war, Woolwich instructions and instructors in munition making."

135. The Chief Mechanical Engineer at Woolwich, Mr. C. H. Roberts, describing this instructional work to the McKinnon Wood Committee in 1919, was reported as follows:—

"In the spring of 1915, when the War Office Armaments Output Committee was endeavouring to get firms all over the country to take up the manufacture of shells and cartridge cases, it became a recognised procedure to send the firms' representatives—practically none of whom knew anything of the business—down to Woolwich to be instructed. This was soon found, however, to be hindering the Ordnance Factories to such a serious extent, by occupying the time of foremen and managers, that his"—Mr. Roberts—"department was asked to take on this instructional work. This was done, and Mr. Roberts also wrote a series of instructional sheets outlining the principal operations in the manufacture of each type of component, and it is believed that these were found so useful that they were printed and distributed in large numbers to firms all over the country, who were then taking up the work. Altogether about 1,500 firms, or their representatives, visited Woolwich for the above purpose, and of these, he himself saw over half, but was afterwards unable to continue doing so, as his own time was too much occupied by the great expansion in plant then being undertaken at Woolwich. He thought it was not too much to say that were it not for the assistance given by the Ordnance Factories at Woolwich during the period in question, there would have been very little prospect of any of the numerous controlled factories—now running into some thousands—producing any output for months, not to say years."—(Minutes of the Engineering Sub-Committee of the McKinnon Wood Committee, 7th meeting, 22nd October, 1918.)*

136. The claim thus made by the Chief Mechanical Engineer on behalf of Woolwich as an instructional agency was fully upheld by the findings of the McKinnon Wood Committee when the War was over. For they proposed in their Report† that all preparations for future industrial mobilisation for war production should be devolved upon the Arsenal.

Thus they say:—

"Moreover it is necessary to bear in mind the assistance which such an arsenal can render in training the personnel of new factories, when expansion is suddenly required"

"We also consider that a section of the Woolwich Drawing Office should be organised specially

for the design of jigs, gauges and special tools—a branch of design which requires special experience. The supply of the necessary drawings of these articles is the first requisite of war expansion"

"The issue of drawings to guide manufacture after sealing by the Chief Inspector should be undertaken by a special branch of the main drawing office, which should be organised and equipped for considerable expansion"

"It"—the Arsenal—"should also be capable of immediate supply of design for jigs and gauges of all current articles of armaments immediately on mobilisation of the engineering resources of the country for war, and also be in a position to send technical manufacturing advice to the firms involved."

137. I submit, therefore, that the experience of the last war showed that government factories have great advantages over private firms in the vitally important matter of instructing non-armament firms. The recommendation of the McKinnon Wood Committee on this subject must carry great weight in view of the time at which, and the circumstances in which, their Report was made.

I submit that the verdict of the McKinnon Wood Committee supports the conclusion that the greater the proportion of armament workers who are employed in government factories in peace-time, the larger will be the cadre of expert workers immediately available to mobilise industry in general if war breaks out. This is an important technical advantage of the system of Government monopoly.

The Construction of new Factories.

138. I now turn to the third question set out in paragraph 113 above, namely: Is a private firm better adapted than Government Departments for building new factories and installing new plant to produce the kinds of war material, demands for which exceed all the supplies which can possibly be obtained from the existing resources of the armament and non-armament industries of the country?

139. It was shown early in the last war that neither the maximum expansion of existing armament plant, nor the complete mobilisation of non-specialised engineering plant, would suffice to meet the nation's war requirements. The creation of additional new factories with specialised plant was thus urgently required.

140. It was also shown that, in the task of constructing such factories, the Government had great advantage as against the private firms. An illustration may be given by citing from the History of the Ministry of Munitions the account of a transaction between the War Office and a private firm in the early days of the war. The firm in question was the Norton Metal Company, Ltd. This firm desired to build and equip a complete plant capable of dealing with every stage of production of small arms ammunition. The firm

"asked for a contract for the supply of 4 million (rounds) a week from March 1915 to March 1916, or a firm order for 100 million. The terms asked were 128s. 9d. per 1,000 together with a cash advance of £65,000." (N.B. the average price of pre-war contracts was about 100s. per 1,000). "The firm asked for some assurance as to their post-war position, having especially in view the presumption that the Woolwich plant would also be greatly extended. They maintained that 'if in the past the various contractors had been subsidised, or kept going with regular orders for ammunition, the present emergency would not have occurred.' The firm was told that 'on the conclusion of the war, orders for small arms ammunition will naturally contract to the peace scale, and no undertaking as to their extent can possibly be given.'"

* Quoted from *War or Peace: The National Control of Armaments*, by Gilbert Slater, M.A., D.Sc.

† Cmd. 239, 1919, pp. 8 and 13.

"On September 8 the firm were instructed to proceed in anticipation of a contract for an additional quantity of 45,000,000, the price to be settled later . . . The order was accepted on September 21 at 12s. per 1,000, but the firm demurred to the application of the penalty clause for late delivery.

"In the event, only 9,400,000 cartridges were delivered within the specific time limit, the balance, 35,600,000 becoming liable to liquidated damages amounting to £5,150. The firm stated that among the causes of delay the excavating contractor had been two months behind time, that the plant was delivered late, that labour supply had been inadequate, and that appeals to the Government for assistance in securing toolmakers had met with little result. The claim was accordingly waived."

141. This story is only typical of very many others that could be given. It shows:—

(a) The difficulty of the Private Firm in raising the capital required and the consequent demand for an advance from the Government.

(b) The anxiety of the firm concerning the future of the new plant when the War was over—and no one had any conception how soon that might be.

(c) The delays in building the factory, owing to the failure of other contractors to fulfil their promises.

(d) The delays in the delivery of the necessary machinery.

(e) The difficulty of securing the labour, and especially the skilled labour, required.

142. Some of these were obstacles to the rapid opening of new plants which faced everyone, Government and private firms alike, during the War. But it is important to note that in respect of all of them the Government were in a far stronger position than the Private Firms. For:—

(a) If the Government desired to invest capital in national factories it had the unlimited resources of national credit on which to draw.

(b) It need fear no financial loss, since that loss would fall on the shoulders of the nation, who were more than willing to accept the risk of such loss, if so doing diminished the danger of military defeat.

(c) While the Government could only advance capital to private firms after most careful consideration and negotiation, it could do so at once for national factories.

(d) It had a far stronger hold on building contractors than any private firm could have.

(e) The Government alone could ensure delivery of the necessary machinery where it was most urgently required.

(f) The Government alone could secure the necessary skilled labour to enable a new factory to enter into production.

These great advantages are among the reasons which explain the overwhelming success of the national factories which Dr. Addison described to the Commission. They plainly give the Government great advantages over private firms in the rapid construction of the new factories and plant which are sure to be required in time of war.

Conclusions.

143. I may now perhaps summarise the general results of the above discussion of the expansion of armament production in time of war.

(a) The amount of plant, labour and managerial skill devoted to armament production in any given country in time of peace depends upon the amount of armaments which that country annually produces. It will not be greater if distributed among the factories of private firms than if it is concentrated in government factories (allowing for a possible small difference owing to export trade).

(b) There is no ground of theory or experience for holding that a given amount of plant, labour and managerial skill in a private factory will

permit a more rapid or larger expansion of production on the outbreak of war than a similar amount so engaged in government factories.

(c) There is no ground for believing that private firms are better able than Government factories to mobilise the non-specialised engineering resources of the country for war-production. On the contrary, Woolwich Arsenal, though acting under great difficulties and without preparation, fulfilled the function of an instructional agency with considerable success. The armament firms upon whom the Government had relied for this purpose completely failed. They failed for the reasons set forth above, i.e.:

(i) The failure of sub-contracting.

(ii) The chaos produced by their competition for supplies of labour.

(iii) The chaos produced by their competition for raw materials.

(iv) The chaos produced by their competition for machine tools and other equipment.

(v) The incapacity of the private firms adequately to sub-divide manufacturing processes.

(vi) The incapacity of private firms to co-ordinate production on an adequately large scale.

(d) There is no ground for believing that private firms can build the new factories required for armament production in war time more rapidly or more advantageously than the Government can build them.

144. I submit, therefore, that both theory and experience lead to the conclusion that there is no function in the expansion of armament production in time of war which cannot be at least as effectively performed by the Government as it can by private firms. I submit further that the facts set forth above give strong grounds for holding that a positive balance of advantage lies with Government establishments in all the various regards which have been discussed, and that therefore the larger the proportion of plant, man-power and managerial skill which is concentrated in Government establishments when war begins, the more rapid the expansion of production is likely to be. If this be true, then, so far as expansion of production is concerned, advantage lies with the system of Government monopoly.

The Evidence of Authority.

145. I submit that the above conclusion is strongly supported by the mature judgment of many of those most closely concerned with armament production during the War.

(a) The Commission will recall that the abandonment of reliance on the private firms, the creation of the Ministry of Munitions, and the mobilisation under national control of the engineering and other resources of the nation, were carried through with the full approval and concurrence of every party in the State. During the last three and a-half years of the War it was universally agreed that in the change which had been made lay the nation's chief hope for the avoidance of defeat.

(b) I submit that the Report of the McKinnon Wood Committee further supports this view.

146. I venture to recall to the Commission the Terms of Reference and the composition of this Committee. Their Terms of Reference were as follows:

"To enquire into, and report upon the control, administration, organisation, lay-out, and equipment of the Royal Ordnance Factories at Woolwich, and the nature and distribution of the work carried on in them and at the Arsenal generally, and to advise the Minister of Munitions what, if any, changes are required.

"The Committee to have due regard to the importance of efficient and economic production, and the necessity for maintaining a reserve of productive power, and to give due weight to the obligations of the Government, as an Employer, to ensure the best possible industrial and housing conditions for the Employees."

147. The McKinnon Wood Committee was presided over by an ex-member of the Cabinet, the Rt. Hon. T. McKinnon Wood, M.P. Its members included representatives of the War Office, Admiralty and other Departments. Two of them—Admiral Sir R. H. S. Bacon and Mr. H. Monsforth—had earlier been Directors of private armament firms; Admiral Bacon had also held a responsible post in the Government administration during the War; while Mr. Brindley had been Manager of the Ponders End Shell Factory. Most of the others had had first-hand experience of at least some aspects of munition problems during the War.

148. During the seven months from August 1918 to March 1919 the Committee took evidence from many of those who had the highest posts of responsibility in connection with the production of armaments during the War. They thus had greater collective experience of the problem of munition production than any other body of people who have ever considered the matter. They made their report in the light of the extended and convincing trial of the plan recommended by the Murray Committee, and of the system of national control which replaced it.

149. It is true that their Terms of Reference restricted them to the future of the Government factories at Woolwich. But at that time Woolwich was employing 74,000 workers—far more than would be required for the peace-time needs of the nation. Thus the Committee were in effect reporting on how the nation should in future procure its arms. For a limited number of orders they had to choose among many potential sources of production—the pre-war ordnance factories, including Woolwich; the old established private armament firms; the new national factories; the other engineering firms which during the war had entered into armament production. If they chose to recommend that Woolwich should continue, and be given work, they were in reality proposing that the other sources of production should be closed down, unless by express reservation they made it plain that means should be found to keep these other sources in existence.

150. By their Terms of Reference they were to have due regard "to the necessity for maintaining a reserve of productive power", i.e. they were specially instructed to consider the question of how to expand armament production when war broke out.

151. Charged with this duty they reported as follows:—

"(a) *Armament production after the War*":

Government Arsenal and Private Factories . . .

"Assuming this to be so, it will still be vitally necessary for the Government to continue to carry out experiments with new forms of weapons and new developments in the material for war introduced by scientific research and therefore a factory or factories either owned by the Government or private trade will be required for this purpose. We consider that the arguments in favour of the retention of a Government Arsenal in peace-time are overwhelming" . . .

"Assuming, therefore, that a Government factory is kept in existence, and that the supply of armaments is greatly reduced in quantity, it more or less follows that the present outlay of the larger private firms for armament production will be considerably reduced, and such manufacture will not improbably disappear as a speciality. It is also probable that the country will insist on the production of all armaments being confined to Government factories; nor would the disappearance of the larger armament firms materially handicap production in the event of a serious war, since during the present war a very large number of engineering firms have been educated in armament manufacture, and the basis for armament supply is now so broad that specialising in the future on the part of a limited number of firms will probably not be necessary for the safety of the country. The magnitude of present day war

operations is such that the reserve of manufacture in peace time for war development cannot be looked on as being concentrated in the Government arsenal and two or three particular firms. The real reserve for war is the whole of the manufacturing power of the country, which has been educated in the supply of armaments."

This statement, taken in its context and under the heading which I have cited, can, I submit, only have one meaning, namely, that the Committee, faced with the choice between the continuance of Government manufacture and the continuance of Private Manufacture, chose Government manufacture, knowing that the price of their choice might be the total disappearance of Private Manufacture and of the "larger armament firms." Yet not once only, but repeatedly throughout their Report, the Committee call attention to the fact that Private Manufacture will probably disappear.

151A. Not only do they make this choice, but they recommend that everything possible should be done to increase the orders given to Woolwich Arsenal.

"We desire to urge", they say, "the desirability of the Government Departments concerned placing as many orders as possible with the Arsenal for Manufacture and Repair, and particularly for naval, military and other Government stores not now produced or repaired there, such for example, as Tanks, Mechanical Transport, and possibly Naval Hydraulic Mountings."

They made no recommendation for giving orders to private firms. This fact must be considered in the light of the recommendation of the Murray Committee in 1907 to increase the orders given to private firms at the expense of the Government factories.

152. Moreover, this recommendation was primarily made by the McKinnon Wood Committee because they had been specially instructed to consider the importance of Woolwich Arsenal in connection with the expansion of production in time of war. Thus:

(a) They say that "as many orders as possible" should be given to Woolwich in order to provide "a larger nucleus for expansion in case of emergency." In this passage they exactly reverse the findings of the Murray Committee in 1907.

(b) In stating the general arguments in favour of retaining a Government Arsenal, they say:

"It is necessary to bear in mind the assistance which such an arsenal can render in training the personnel of new factories, when expansion is suddenly required."

(c) They go on to assert that "the disappearance of the larger armament firms" will not "materially handicap production in the event of a serious war".

(d) In their formal recommendations they propose in detail, as I have explained above, how Woolwich should be prepared and equipped for the task of training and mobilising the general engineering resources of the country.

152A. It must further be particularly noted that they put these proposals forward after having considered and rejected a suggestion of one witness, Major-General the Hon. Sir F. R. Bingham, a member of the Munitions Council, to the following effect:

"That some of the armament firms should be maintained (possibly by means of a subsidy) in a state of readiness to produce munitions immediately a war was imminent, and that, with the exception of one or two, the new National Factories should be closed down and left dormant, their machinery being stored."

It is true that this suggestion was rejected on the ground that the total demand would be too small to encourage private firms, and that "future Parliaments in all probability would not permit of subsidies being granted". But it is plain that if the McKinnon Wood Committee had taken the Murray

* Quoted from *War or Peace: The National Control of Armaments*, by Gilbert Slater, M.A., D.Sc.

Committee's view, if they had thought the existence of private firms to be important for the expansion of armament production in time of war, they would have said so, and would have urged "future Parliaments" to give the subsidies required. They did

nothing of the kind, for the reason, amply shown, as I submit, in their Report, that it was on Government Arsenals and not on private firms that they relied to secure the necessary expansion in time of need.

CHAPTER XIII

The Alleged Difficulties of Defining Armaments

153. It is often said by those who defend the existing system of armament production that the requirements of the fighting forces are now so multifarious that it is impossible to draw the line between armaments and other industrial products; and that therefore armament production cannot be nationalised without the simultaneous nationalisation of most of the industry of the country.

154. This argument assumes a variety of forms, but when the statements of those who use it are carefully analysed they are found to raise four different questions:

(a) What is an armament? Where must the line be drawn between what can and what cannot be used for purposes of attack or defence in time of war? Should, e.g., motor transport and barbed wire be included or excluded?

(b) What is a "component part" of an armament? When does raw material, like iron ore, or a partly finished product of industry, become a "warlike store" which must be dealt with under the plan adopted for the abolition of private manufacture?

(c) What is an Armament Firm? i.e., what firms can properly be said to manufacture armaments in time of peace?

(d) What is a *potential* armament firm? i.e., what firms can adapt their plant for armament production if required?

It is said that to none of these questions can a clear, straightforward answer be made; that in respect of each of them the difficulty of definition is insuperable; and that therefore no workable scheme for establishing a Government monopoly can be drawn up.

The Definition of Armaments.

155. To the first of these questions, however, a straightforward answer can very easily be found. "Armaments" have been defined in the British Government's "Arms Prohibition Order" of 1931.* This Order establishes a number of detailed categories of objects the export of which without a Government licence is forbidden.

This British definition coincides very closely with that contained in the International Convention on the Arms Traffic adopted in Geneva in 1925; and also with the definition contained in the Draft Convention on the Arms Traffic proposed by the United States Government in Geneva in December, 1934. Thus it may be claimed without hesitation that the major Governments of the world have found it possible in these national and international legal documents to designate, with sufficient precision for the purpose of licensing and controlling the international trade in arms, what objects are to be regarded as capable of offensive and defensive use in war.

The Value of the Definition of Armaments.

156. This conclusion is important, since, if the Governments have defined the objects for the export of which they require a licence, they have thereby defined the objects which, if they abolish Private Manufacture, they must forbid private firms to make.

But this does not solve the whole difficulty of definition for the purpose now being discussed. There is a real difference between the problem of defining armaments for the purpose of controlling International Trade and the problem of doing so for the purpose of prohibiting Private Manufacture.

For in seeking to control International Trade the Governments have so far been primarily concerned to prevent the instruments of war from reaching irresponsible persons who may use them to foment civil disturbances, the slave trade, etc. This object can be attained—so far as a license system can attain it—by controlling the trade in "finished" arms alone. For this purpose it would be absurd to control also the "component parts" of finished arms, since the irresponsible persons whose illegal activities it is desired to check are not capable of using such component parts. Thus, for the purpose of such national and international Arms Traffic regulations as have hitherto been made, the definition of armaments proper is sufficient, and the last three of the four questions enumerated in paragraph 154 above do not arise.

But this is no longer true when the abolition of Private Manufacture is considered. For then the Government must decide not only what finished articles, but also what component parts, it will forbid private firms to manufacture and what factories must be nationalised or closed.

The Purpose for which Abolition is Proposed.

157. At this point, however, it is essential to consider the Government's *purpose* in proposing to abolish Private Manufacture. If it desires wholly to eliminate all elements of profit from every industrial and commercial process involved in supplying its armed forces with the means of making war, it will have to go far beyond the prohibition of the manufacture of finished arms alone. At present private firms which make and sell finished arms buy component parts from other firms; these latter buy raw materials from yet other private firms; and every one of these units makes its profit from the commodities which finally become the instruments of war. Thus the firms involved in these processes are very numerous. Moreover, it can be said with considerable truth that, in a broad sense, the Armament industry embraces:

(a) The Iron and Steel industry;

(b) The Motor Engineering industry (for aircraft, tanks, mechanised artillery, army transport and ships);

(c) The Electrical industry;

(d) The Chemical industry.

Similarly the raw materials for armament manufacture include:

(a) Most mineral products;

(b) Many important chemical substances used in industry;

(c) A large variety of agricultural products such as cotton, wood pulp, etc.

If, therefore, the Government desired to eliminate all private profit on every constituent element of every article which ultimately takes the form of arms or munitions it would require to nationalise the greater part of industry.

158. But this is *not* the purpose of most people who advocate the abolition of Private Manufacture. Their purpose is the more practical one of eliminating the vested interests which exercise a baleful influence on public policy in matters of disarmament and peace. And to fulfil this more limited purpose, it will suffice, broadly speaking, to remove the profit motive from the production of armaments proper, as defined in the Treaties and Orders in Council named above.

159. Indeed, when the problem is clearly stated in these terms, it is easily seen that no insuperable problems of definition will arise.

For this more limited purpose, we know already what are the "armaments" with which we have to deal.

* S.R. & O. 1931, No. 413.

And we know too what are the armament factories with which we have to deal.

It may be difficult to say what is an "armament firm" and what is not. It is quite easy to say what is an armament factory. For while it is true, as I have said, that armament manufacture requires the closest co-operation of the iron and steel trade, and of the motor-engineering, electrical and chemical industries, it is also true that armaments are *not* for the most part made in factories where all these industries are linked in a single unit. On the contrary, they are produced in specialised factories which take iron and steel forgings, electrical equipment, chemical substances, etc., as partly finished goods. In this regard, government arsenals and private firms follow much the same practice.

160. These armament factories are in most cases differentiated from other kinds of factories in the following ways:

(a) By the fact that they require a varying proportion of specialised machinery and machine tools which cannot be diverted to peaceful uses.

(b) By the fact that they require a considerable proportion of highly specialised skilled labour.

161. These facts indicate a practical solution of the difficulty of "definition" which would confront a Government desiring to abolish Private Manufacture. It would have:

(a) To forbid the making by private firms of the articles defined as armaments in the national legislation and international treaties referred to above.

(b) To suppress or nationalise the private factories where these articles are made.

(c) To forbid private firms to keep specialised armament machinery and machine tools in their factories.

Potential armament factories, on the other hand (i.e., factories or plant that is not actually making armaments but which could be readily adapted at least to some of the processes involved in armament production) would not need to be considered at all.

162. But this does not solve all the difficulties that will face the Government. There are in particular two questions which will arise:

(a) *Component Parts*.—How far will nationalisation be carried? Will the Government make all component parts or will they buy from private firms? What component parts will they forbid private firms to export to foreign countries?

(b) *Articles which have both a Peaceful and a Warlike Use*.—Will the manufacture of aeroplane engines, which may be fitted to either civilian or military machines, be nationalised or not? How will the Government deal with Chlorine, Phosgene and other chemical substances which are used both for making poison-gas and for various "peaceful" purposes of daily life?

163. If the Government's purpose is that now under consideration, namely, the simple elimination of vested interests capable of exercising an undesirable influence on national policy, a fairly simple working answer can be made:

(a) *Component Parts*.—It may suffice to adopt the principle that Government factories would continue the same practice with regard to component parts which they have followed in the past.

This would only be a rough working rule and would, of course, have to be supplemented by the following additional rules:

(i) All products of a genuinely warlike kind not now made in Government establishments should be among those for which a Government monopoly is set up. Examples are: heavy naval gun mountings, armour-plate, tanks, military and naval aircraft.

(ii) The Government monopoly might also be extended to other important and costly component parts which are not of a directly "warlike" nature, e.g., propelling machinery for warships, boilers, etc.

(iii) It might be better, on the grounds of efficiency, for the State to establish its own plant for making armament steel.

But, with regard to all smaller component parts, e.g., magnetos for aircraft, propellers for ships of war, optical equipment for artillery, and the other very numerous articles of secondary importance which are now purchased as component parts, it would not greatly matter where the line with regard to component parts was drawn. If the existing practice of Government factories in respect of such minor requirements were adapted to the changed conditions of the monopoly regime, it would suffice to ensure that there would be no important group, or groups, of private firms who would have a very considerable direct interest in the increase of armaments at home or abroad. The purpose now under discussion would thus be adequately fulfilled.

(b) *Articles with Double Use*.—Similarly, if the purpose of abolishing Private Manufacture is merely to remove a dangerous vested interest from public life, a simple solution would suffice for the problem of objects with a double use.

Thus, with regard to aircraft, aircraft engines, and chemical substances, it would be enough to inform the private firms in the Aircraft and Chemical Industries:—

(i) that they would receive no more orders from the Government for aircraft, aircraft engines or chemical products of a warlike kind;

(ii) that they would receive no licences for the export of these products to foreign Powers.

164. There would be no danger of substantial evasion of these rules with regard to articles of double use, for the following reasons:—

(i) Government itself would have complete control over all the purchases made for the British armed forces. There is thus no possibility for abuse.

(ii) The Department of Overseas Trade would immediately discover from its detailed statistics of industrial exports if suspiciously abnormal exports of products capable of warlike use were being made. If the exporters could not furnish satisfactory explanations, export licences could be withheld, and if necessary, penalties could be imposed.

Thus, the vested interest of the manufacturers of aircraft, chemical products and other objects of double use in their *military* market would be effectively destroyed.

Would the Proposed Solution Suffice for International Agreement to Abolish Private Manufacture?

165. The simple plan just suggested would also suffice to solve the problems of definition under an international treaty for the abolition of Private Manufacture, provided the only purpose of that treaty were to eliminate the vested armament interest, and provided that the good faith of all signatory Governments in seeking to fulfil this purpose could be assumed.

Abolition of Private Manufacture as a Guarantee against the Evasion of a Disarmament Treaty.

166. But when the abolition of Private Manufacture by international agreement is discussed, another and quite a different purpose is usually assumed, namely, that this abolition combined with international supervision and control of Government manufacture, shall serve as an additional guarantee to prevent evasion of a Disarmament Treaty.

It is this assumption which has introduced so much confusion of thought into the discussions of "definition." For, if the abolition of Private Manufacture is to be used as a means of checking evasion, it can no longer be assumed that Governments will be of good faith, and this changes the whole nature of the problem to be solved. The purpose now in view must be to prevent a disloyal Government from secretly increasing its armed strength above its permitted Treaty limits. To do this it is clearly necessary to make it impossible for such a disloyal Government:

(i) To pile up great quantities of component parts which it can assemble into finished arms when the moment chosen for its aggression arrives;

(ii) To increase the number of factories equipped with specialised armament plant;

(iii) To prepare in advance the industrial mobilisation of factories which are potential arsenals.

For this purpose it would be necessary to have:

(i) An agreed international definition laying down what component parts may or may not be made in private factories;

(ii) An agreed international definition as to what plant and machine tools constitute specialised armament machinery;

(iii) An agreement as to what factories (e.g., State arsenals) may have this specialised plant.

167. The difficulty of defining "component parts" and "specialised machinery" will depend in part upon the nature of the Disarmament Treaty. If the Treaty provided for the abolition of the so-called "aggressive weapons" forbidden to Germany in 1919, this fact would enormously reduce the scale and complexity of the armament industry required in time of peace, and, in particular, would largely remove the difficulty of definition that arises in connection with military aircraft, aircraft engines and chemical products.

168. But even if the first Disarmament Treaty did not go so far, particularly in the direction of abolishing national Air Forces and the chemical weapon, it would not be impossible to find a solution for the problems of definition which would arise.

The solution might take the following form:—

(a) For component parts it should be founded upon the principle proposed to the Disarmament Conference by the Governments of France, Denmark, Poland and Spain. This principle was put forward by these Governments in the following words:—

"The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms.

"The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destines it exclusively for military use."*

This principle could, no doubt, with common sense, be given a satisfactory practical application. Indeed, it has already been given such an application by the Allied Commissions which carried through the disarmament of Germany in the years that followed the War. How the Allied Commissions arrived at this principle is shown by the following extract from a despatch from the *Times* correspondent in Berlin dated 12th January, 1927:—

"In the course of inquiries I recently made for the purpose of ascertaining the German point of view, I was shown a thick metal disc, about 4 in. across, slightly convex on one side and flat on the other. It represented an early stage in the manufacture of a shell case. It could be made into a shell case, but it could also be made into a metal bowl or jug. Similarly I was shown a small gun-metal cup, which by a series of subsequent processes could be transformed into a rifle cartridge case; but by a different process it could also be made into one of a dozen other things. *There is in these and most other partly-wrought manufactures a point at which the respective processes of manufacture separate. It is at this point that the definition 'destined for the purpose of war' becomes applicable and the object of the object is prohibited.*"

The Allied Commissions applied this principle to component parts in a thorough manner and established carefully elaborated categories of such parts which German manufacturers were not allowed to make either for home consumption or for export.

These categories were finally embodied in a German law passed by the Reichstag in 1927. A translation of the text of this law, taken from the Board of Trade Journal of May 17th, 1928, is reproduced in Annex D attached to this statement. I venture to direct the special attention of the Commission to Sections 3, 4, 7 and 9 of this German law.

(b) The Allied Commissions made similar regulations concerning the specialised armament machinery and machine-tools which German manufacturers were not allowed to possess. The principle of these regulations was embodied in the same German law (see Sections 8 and 9).

Without doubt the control of specialised armament machinery and machine-tools might be of great importance in preventing disloyal evasion of a Disarmament Treaty. The Allied Commissions in Germany had prolonged discussions with German manufacturers and the German Government on this matter, and refused to give way to the demands which Germany made to be allowed to possess such specialised machinery and machine-tools. Commenting on this decision the *Times* correspondent in Berlin said in a despatch dated January 6th, 1927:—

"To give way on the question of machinery for the manufacture of arms would be to undo all the work the Commission has done since the War, and to render the disarmament of Germany a myth."

I submit to the Commission that an international arrangement founded on the principle embodied in the German law of 1927 would furnish a working system which would satisfactorily solve the problem now under discussion.

No doubt it would require administration by competent experts who were thoroughly familiar with the problems of armament manufacture; but obviously only such experts would be chosen to administer it and, as members of the International Commissions of Supervision and Control to be set up, they would be given the rights and powers which were necessary to enable them to discharge their task.

(c) But in respect of objects of double use—aircraft and chemicals—a difficulty would still remain. Whether national Air Forces and the chemical weapon were abolished or were merely limited, it would still be necessary to take special measures to prevent evasion of the terms of the Disarmament Treaty. These measures would have to include:

(i) Special regulations governing aircraft factories, to control their output of finished machines, engines, spare parts, etc.

(ii) Special regulations governing chemical factories to control their plant and their output of substances capable of use for war.

(iii) A special system of stringent international inspection and control by qualified experts to ensure that these regulations were observed, and that abnormal quantities of potential war material were not produced.

(iv) A special agreement for mutual assistance among the Signatories of the Disarmament Treaty against any State which violated its obligations in respect of Air or Chemical Disarmament.

There would be no insuperable difficulty in establishing regulations and control of this kind. The Disarmament Conference did a good deal towards drawing up a practical plan in this regard; but as the matter may be held to fall outside the immediate scope of the Commission's inquiries, I will not discuss it further.

Conclusions.

169. From the above discussion I venture to draw the following conclusions for the consideration of the Commission:—

(a) Armaments have been defined in national legislation and international treaties, and in particular in a British Order in Council of 1931, with all the precision required for the purposes of the abolition of Private Manufacture by Great Britain acting alone.

* Conf. D./C.G. 48, March 3rd, 1933. See Annex B.

(b) If the Private Manufacture of the articles thus defined as armaments were forbidden, the problem of component parts could be solved on the basis of the present practice of Government Arsenal and Ordnance Factories adapted and modified as His Majesty's Government might find convenient and wise.

(c) The adoption of this plan with regard to component parts would not eliminate every element of private profit from the manufacture of arms, but it would do so in a sufficient degree to carry out the social and political purposes for which the abolition of Private Manufacture is desired.

(d) The above plan would suffice as the basis of an international treaty for the abolition of Private Manufacture, provided the purpose of that Treaty were only to eliminate the present influence of the vested armament interests from public life, and provided that the good faith of Governments in applying the treaty could be assumed.

(e) If, however, it were desired to adopt a more far-reaching and watertight solution of the problem of component parts, that put forward in the Memorandum of the French, Polish, Danish and Spanish Governments could be adopted by the Government armament establishments. The German law of 1927 should give all the guidance that is required for the drafting of whatever legislation, Orders in Council or Regulations might be necessary.

(f) This law, and the experience of the Allied Commissions in Germany, would also suffice to guide the officials charged with the practical administration of the Regulations adopted.

(g) It would be necessary to adopt this more far-reaching solution if the abolition of Private Manufacture and the control of armament production were intended to operate as an additional guarantee that the limits of armed strength allowed by a Disarmament Treaty would not be secretly evaded by a disloyal Government.

(h) The legislation passed for this purpose by the States signatory to the Disarmament Treaty would have to lay down precise and comprehensive regulations concerning:—

(i) The component parts which private firms are forbidden to manufacture.

(ii) The specialised armament machinery and machine-tools which private firms are forbidden to possess.

A model for the definitions required would again be furnished by the German law of 1927.

(i) For the Aircraft and Chemical Industries additional guarantees, including specially stringent international control and inspection, would be required to prevent the evasion of the restrictions of a Disarmament Treaty.

(j) No difficulty concerning the Aircraft and Chemical Industries will arise, however, if Private Manufacture is abolished by Great Britain acting alone.

CHAPTER XIV

The Difficulties Involved in Foreign Trade if Private Manufacture were Abolished

170. It is sometimes said that if Private Manufacture were abolished it would cause great difficulty in the following ways:—

(a) Non-arms-producing States would be placed in a dangerous position, since they would be at the mercy of the Governments of the producing powers;

(b) In consequence of this, Great Britain, if she abolished Private Manufacture by unilateral action, would lose the whole of her present export trade in arms;

(c) If Private Manufacture were generally abolished by international agreement, and inter-governmental trading in arms thus became necessary, this would introduce undesirable new factors into international affairs, since arms-producing Governments would bring pressure on non-producing Governments to increase their orders;

(d) Difficulty would arise from the International Law of Neutrality, since under that Law no Government may furnish arms to another Government which is at war. This, it is said, would:

(i) Place non-producing States at the mercy of any of their foes who had arms-manufacturing capacity of their own;

(ii) Deprive producing countries, such as Great Britain, of important markets for their products;

(iii) Deprive Great Britain in time of war of important sources of armament supply, e.g., from the United States of America, from whom she obtained such large quantities of munitions in the last war.

(e) In consequence of the dangers to which they would be thus exposed, non arms-producing States would be driven to establish Government arsenals of their own and the total capacity for armament production throughout the world would, therefore, be greatly increased.

The Attitude of Non-arms-producing States.

171. It is generally assumed by those who use these arguments that the non-arms-producing States have unanimously and vigorously protested against the proposal for the abolition of Private Manufacture.

This is not the case. The question of Private Manufacture has been under discussion in Geneva in various forms for many years. In these discussions

the representatives of non-arms-producing States have always been present and have taken part in the debates. Their attitude may be shown by the following summary of facts.

171A. On 12th December, 1925, the Council of the League of Nations addressed a Questionnaire to the Members of the League, inviting them to give their views concerning the nature and extent of the "grave objections" to Private Manufacture, and inviting them to make suggestions about the action which the League should take. To this Questionnaire a considerable number of non-arms-producing States sent answers. Three of these answers—from Turkey, Australia and Greece—appear at first sight to be favourable to the system of Private Manufacture; but closer examination shows that the answers are capable of other interpretations. Of the other replies from non-arms-producing States, none was definitely in favour of Private Manufacture, or declared that it was essential to their national defence. Bulgaria was definitely in favour of its abolition. Cuba, Latvia and Norway all stressed the evils of Private Manufacture and Norway strongly urged the advantages of its abolition. Colombia and China declared that Private Manufacture was already prohibited in their countries. Estonia and Venezuela wrote elaborate answers, but made no defence of Private Manufacture.

172. There were further discussions in 1928 and 1929 on a Draft Convention which provided for the publicity of armament manufacture by private firms. In these discussions, the non-arms-producing States insisted that if publicity were established for the private armament industry, it should be established for Government Arsenals as well. They did not defend Private Manufacture as a system; they only demanded equality of armament-publicity for all.

173. In 1932 and 1933, the Disarmament Conference in Geneva discussed Private Manufacture on a large number of occasions. Eventually, on the motion of France, a special Committee of the Conference was created to consider the whole subject of the Manufacture of and Trade in Arms. Four countries—France, Denmark, Spain and Poland—laid proposals before this Committee for the total abolition of Private Manufacture by International agreement. These proposals were opposed by a few of the arms-producing States; they were not opposed

either in the Committee or in the General Commission of the Conference by the representatives of the non-producing States. Turkey and Persia went even beyond France by proposing the full internationalisation of arms manufacture. *No non-arms-producing State declared that Private Manufacture was essential to its safety.* The representatives of a number of non-arms-producing States—in particular Canada, Norway and Denmark—declared themselves in favour of the total abolition of Private Manufacture. Denmark prepared, and, with the help of France, Spain and Poland, laid before the Conference a special memorandum in which it specifically answered the argument of the arms-producing countries that abolition would damage the interests of the non-arms-producing States. The memorandum said:

"The non-producing States derive no benefit from the system of Private Manufacture. The abolition of this system would not, therefore, modify the situation of non-producing States in any way."

The language could not have been clearer, and it was not challenged by a single representative of a non-producing State.

I submit to the Commission that the above facts justify the conclusion that the non-arms-producing States are not opposed to the abolition of Private Manufacture.

Abolition and the Position of Non Arms-producing States.

174. It is none the less necessary to examine the arguments of those who hold that abolition would in fact be detrimental to the interests of the non-producing States. These arguments may be stated and answered in turn.

174A. First, it is said that no Government would ever willingly purchase arms from the state arsenals of another Government, because to do so would place it at the mercy of the selling Power, since the latter could withhold supplies whenever it desired.

This argument assumes that the Governments of arms-producing States regard their private manufacturers as entirely free to export arms without engaging the Government responsibility in any way.

But this is not the case. In the Franco-Danish-Polish-Spanish memorandum already cited it is said:

"Even in the present state of affairs Arms are only consigned by a private factory with the assent of the Government on whose territory that factory is situated."

In other words, Governments of arms-producing States already apply the principle of Government responsibility for the export of arms and exercise an effective control which permits them to prohibit those exports whenever they think it right or advantageous to do so. There are, indeed, many examples of "Arms Embargoes" in recent times, including the embargo until recently imposed by a large number of Governments on the export of arms to Italy and Abyssinia, and still maintained in respect of Italy.

In view of these facts, it is difficult to see in what way non-arms-producing States would lose their freedom and become dependent on producing Powers if Private Manufacture were abolished.

175. Second, it is said—it is, indeed, only a variant of the first argument—that if Private Manufacture were abolished, the Governments of non-producing States would have more difficulty in buying from the Governments of producing States than they have in buying from private firms to-day.

Again, this argument is pure assumption, unfounded on any grounds of experience at all. If a National Armaments Board, of the kind proposed by Colonel Carnegie, were to be set up, foreign Governments would have every advantage in dealing with the disinterested expert technicians who would conduct the business of that Board. They would receive goods at cost price; they would be certain that the quality of the goods was above reproach; if, for any reason, they desired to change, they could always deal with the Government of another

arms-producing State; they could have every confidence that the Governments of the arms-producing States would never make a "ring" to exploit the other nations of the world. On grounds both of theory and experience, therefore, there is at least a case for thinking that the position of non-arms-producing States would not be worsened, and might even be improved, by the abolition of Private Manufacture.

It follows from this conclusion that Great Britain would not necessarily lose all her export trade in arms, even if she alone abolished Private Manufacture.

Would Inter-Governmental Trading be open to Grave Objection?

176. Third, it is argued that inter-Governmental trading in arms would be a most dangerous thing to introduce. Sir John Simon has stated this objection in the following way:

"If a manufacturing State had arms to sell, one would fear that it might have ways of influencing prospective purchasers far more powerful than private individuals." (*Times*, 7th December, 1934.)

Mr. Baldwin has used even plainer language:

"He was convinced that the contrary was the case, that so far from leading to a decrease in armaments, it would lead to an increase. If the private manufacture of arms was abolished, arms would have to be made by the State. The expense of that would be enormous. The State manufactory could not sell to a country in time of war."

"Would they get rid of the corruption that was alleged in connexion with the sale of armaments to certain countries? The Government would have to employ thousands and tens of thousands of men, and would it be content always to see these men out of work in slack times? Would there be no temptation to offer loans to foreign countries to buy armaments? Would there be no temptation in making trade agreements to reserve a peculiar position for armaments?" (*The Times*, 24th November, 1934.)

In reply to these contentions, I submit the following points to the consideration of the Commission:

(a) I have not been able to find any record in any country of workers in Government arsenals agitating for an increase in armaments to provide them with employment.

(b) If a Government strove to increase the armaments of foreign Powers by the methods suggested it would be acting in a manner detrimental to the interests of its own nation, since every increase of arms by foreign Powers tends to raise the level of armaments all round, and so to reduce its own margin of security.

(c) If the British Government, acting alone, abolished Private Manufacture, public opinion in this country would never tolerate action by a National Arms Board of the kind suggested by Sir John Simon and Mr. Baldwin.

(d) If Private Manufacture were abolished by international agreement, its abolition would unquestionably be accompanied by the simultaneous establishment of a stringent system of publicity and international control of Government armament manufacture in every signatory country. The French Delegation to the Disarmament Conference put forward a detailed plan for such publicity and control. Such a plan, combined with measures of control for the Trade in Arms would give an effective guarantee that no Government would take the risk involved in seeking to increase armament orders for its arsenals by improper means:

(e) Such a system of international control, combined with the abolition of Private Manufacture, would make it much more difficult than it is now for Governments to exercise their influence in favour of the increase of exports of arms from their countries.

It is known that many Governments have used their diplomatic missions abroad to support the efforts of the agents of their private armament firms. It is known that some Governments have even granted loans to foreign Governments on condition that these loans were spent, in whole or in part, upon the purchase of arms from the private firms of the lending countries.

The facts of these cases show that under the existing system Governments can already use their influence to increase the sale of arms, if, under the pressure of General Staffs or vested interests, they decide to do so; and they further show that while the present system continues they can disguise their responsibility for doing so under the cloak of private firms. The abolition of Private Manufacture would make it, therefore, not more likely, but less likely, that such abuses would happen as Mr. Baldwin and Sir John Simon suggest.

The Difficulties arising from the Law of Neutrality.

177. The next argument is derived from the International Law of Neutrality. It is said that under this Law no Government may furnish arms to a belligerent State and that, therefore, the non-producing States would, in time of war, be wholly deprived of all outside supplies and would thus be at the mercy of any enemy who had an armament industry.

This argument assumes that all Governments still accept the old International Law of Neutrality as the binding rule for their conduct when war occurs.

But this assumption:

(i) Is inconsistent with the principle of Government responsibility discussed above;

(ii) Is inconsistent with the Covenant of the League of Nations, to which 57 nations are signatory;

(iii) Is at least doubtfully consistent, as Mr. Stimson has said, with the Pact of Paris for the Renunciation of War.

The true situation with regard to neutrality has been authoritatively declared in a White Paper laid by the Secretary of State for Foreign Affairs before the House of Commons in 1929. The essential passages of this memorandum are as follows:—

"The effect of these instruments" (the Covenant of the League and the Pact of Paris) "taken together is to deprive nations of the right to employ war as an instrument of national policy and to forbid the States which have signed them to give aid or comfort to an offender. As between such States, there has been in consequence a fundamental change in the whole question of belligerent and neutral rights. . . . The situation which we have to envisage in the event of war in which we were engaged is not one in which the rights and duties of belligerents and neutrals will depend upon the old rules of war and neutrality, but one in which the position of the Members of the League will be determined by the Covenant and the Pact. . . ."

And after some further argument, the Memorandum concludes: "In other words, as between Members of the League there can be no neutral rights, because there can be no neutrals."^{*}

It was on the strength of this Memorandum that the House of Commons authorised His Majesty's Government to sign the Optional Clause attached to the Statute of the Permanent Court of International Justice. Its authority is, therefore, beyond dispute. It follows from the conclusions of this Memorandum:

(a) that no Member of the League is entitled to permit his private manufacturers to furnish arms to a State guilty of aggression;

(b) that under Article 16 of the Covenant every Member of the League is under obligations to assist a country which is the victim of aggression in its national defence, i.e., every Member has the right, if not indeed the absolute duty, to furnish the victim, so far as it may be able to do so, with arms and munitions.

^{*} Cmd. 3452, 1929, pp. 9-10.

[†] *ibid.*, p. 10.

Thus under the Covenant and the Pact of Paris non-arms-producing States would risk nothing from the abolition of Private Manufacture. Indeed, they would have everything to gain, since they are more likely than producing States to be the victims of aggression and, since in such a case, the new rules of the Covenant would be more likely to be loyally applied if all arms-production were in Government hands.

To give a concrete illustration of the point, it may well be doubted whether any Government would have taken the responsibility of furnishing arms to Japan when she invaded China in 1931, or to Italy when she was preparing to invade Abyssinia in 1935; yet private manufacturers supplied both countries on a large scale.

The position of Great Britain if Private Manufacture were generally abolished.

178. Another argument derived from the International Law of Neutrality runs as follows:

It is said that if Private Manufacture were generally abolished by international agreement, Great Britain would, under the working of the law of Neutrality, be cut off from foreign supplies of arms which might be vital to her success in time of war. In support of this argument the vast quantities of arms and munitions obtained from the United States of America during the last war are usually cited.

In reply to this argument, I submit the following points to the consideration of the Commission:

(a) As a Member of the League, Great Britain, if the victim of aggression, would be entitled to receive arms from all the other Member States:

(b) Great Britain would further be entitled to receive arms from the United States of America, if the United States chose to send them. But, under the present Neutrality Resolutions of the United States Congress the United States Government is legally prevented from authorising the export of arms to any State engaged in war. If these Resolutions, as seems probable, should be made permanent, Great Britain could no longer hope that the United States would do again what it did between 1914 and 1918. There is no other State, whether a Member of the League or not, which is likely to be able in any future war to furnish quantities of munitions at all comparable to those sent during the last war from the United States.

(c) Since the present Prime Minister has repeatedly declared that the Covenant is the sheet anchor of British foreign policy, it is obviously necessary that, in such questions as these, policy should be based upon the assumption that Great Britain intends to observe its international obligations and to claim its international rights under the Covenant. This excludes the hypothesis of a war in which Great Britain is the aggressor, or in which she would not be entitled to the assistance of the other Members of the League.

Would the Abolition of Private Manufacture Increase the Arms-Producing Capacity of the World?

179. There is one more argument to be considered under the heading of Foreign Trade.

It is that the abolition of Private Manufacture would place the non-arms-producing States in so dangerous a position that they would all immediately create new national armament industries of their own. It is sometimes added, as a rider to this argument, that even arms-producing States like Great Britain would be obliged greatly to expand their national arsenals to make good the loss of all supplies from neutral States in time of war.

The net result of abolishing Private Manufacture, therefore, according to those who use this argument, would be a vast and wasteful addition to the arms-producing capacity of the world.

In reply to these contentions, I submit the following points to the attention of the Commission:

(a) If Private Manufacture is generally abolished by international agreement, that, in itself, will be an important indication that the major Governments of the world desire to follow a policy of peace, and that the new international law of the Covenant and the Pact of Paris will be observed. The non-arms-producing States will thus have much less motive than they have to-day for incurring the heavy and wasteful expenditure involved in trying to create new armament industries on their national territories.

(b) In any case, it is doubtful whether many of the non-producing States could create an armament industry, however hard they tried. In support of this contention it may be said that:

(i) There is no industry which requires such exact precision, such high grade material and such skilled labour as the making of arms. The processes of armament manufacture are so complex that they can only be carried out in establishments which have achieved the highest standards of industrial technique;

(ii) There is no industry where careless work or defective products are so dangerous;

(iii) The making of armaments requires the existence side by side with the armament factories of an iron and steel industry, an electrical industry and a chemical industry.

Thus, there is little likelihood that any non-industrial State could hope successfully to manufacture arms for itself. Even if it succeeded in establishing a national arsenal it would, in all probability, be little more than an assembling shop dependent for all important component parts upon supplies from the industrial countries, i.e., from the countries which now make arms.

How true this is, was demonstrated by the experience of the last war. The belligerents were then seeking munitions from every corner of the world; money was no object; and profits on armament manufacture were fabulously high. In spite of these inducements, no non-producing State made any considerable attempt to create an arms industry to meet the demand.

Even in Canada and Australia, where the engineering industry is considerably developed and where technical skill is high, the cost was so great that the arms manufacture begun during the War was abandoned when peace was made.

(c) The same point may perhaps usefully be restated in another way. Wherever it is possible profitably to create an armaments industry, the great private armament manufacturers of the world have already done so.

Their task has been, of course, facilitated by the Governments of the world, for very many Governments accept the doctrine that the possession of an armaments industry is an important factor in national defence. Thus Governments of non-producing States have invited the private firms of producing countries to come and establish armament factories on their territory. In this way British armament firms largely built up the armament industry of Japan, while Schneider has built up the armament industry of modern Poland.

It is thus at least possible to argue that the establishment of new and unnecessary national arsenals is a greater danger under the existing system than it would be if Private Manufacture were abolished. For national arsenals could not lend themselves to creating armament factories abroad, as private armament firms habitually do.

The Export of Arms-Producing Capacity, and the Balance of National Advantage.

180. As has just been said, private armament firms export not only finished arms but also arms-manufacturing capacity. I have discussed above to what extent the export of finished arms increases the military strength of a country. I have shown that the differential advantage so to be obtained is relatively small. But the considerations put forward in the last paragraph raise the question whether there is really any differential advantage at all. By their creation of armament industries abroad, do not private armament firms export a far greater amount of manufacturing capacity than they add to the manufacturing capacity of their own country by their exports of finished arms? When the question is put in these terms, the answer is plain. An examination of the international connections of the big British armament firms, of their foreign branches, subsidiary companies, factories and shipyards overseas, shows that they have exported far more arms-manufacturing capacity to the outside world than the meagre addition which their exports of finished arms have made to the manufacturing capacity of Great Britain. The work of Vickers and Armstrong-Whitworth in Japan, with its effect on the naval position of Great Britain in the Pacific, is an instructive example.

I submit that it is indeed evident that the creation of new arms factories in non-producing States would be a more difficult enterprise and, since there would be no profit in it, one less likely to be carried through after Private Manufacture had been generally abolished than it is to-day.

Conclusions.

181. It follows from the above discussion that:

(a) Great Britain would not necessarily lose all her export trade in arms if Private Manufacture were abolished, either by general international agreement or by Great Britain acting alone (cf. also paragraphs 174 and 175 above).

(b) The alleged dangers to non-arms-producing States of the general abolition of Private Manufacture have not alarmed these States themselves.

(c) The fears voiced on behalf of the non-arms-producing States by the spokesmen of producing States and private firms rest on invalid assumptions about the impossibility of inter-governmental trading and about the pre-League International Law of Neutrality.

(d) The evils which it is predicted would result from inter-governmental trading already exist in some degree. There are some grounds for thinking that they are more likely to occur under the present system, since Governments can now cloak their responsibility under the cover which private firms provide.

(e) There is no reason to think that, if Private Manufacture were abolished, non-arms-producing States would create arms industries of their own. Indeed, the creation of new arms industries is more likely to occur under the stimulus of the profit motive than if Private Manufacture were not allowed.

(f) There are no valid grounds for asserting that Great Britain would be cut off from valuable foreign supplies of arms in time of war if Private Manufacture were generally abolished.

CHAPTER XV

The Alleged Technical Difficulties of carrying through the Nationalisation of the Armament Industry.

How a Government Monopoly would be set up.

182. It is sometimes said that even if His Majesty's Government desired to nationalise the armament industry, the technical difficulties of that operation would be such that it would be impossible to carry it through.

I believe this view to be largely due to confusion of thought. It may help to clarify the issues involved if I give a brief summary of the method by which I believe nationalisation could be effected.

I suggest that the following measures would be required:—

(a) It would be announced by His Majesty's Government that, after a certain date, with probably one or two years' notice, that:

(i) no more arms or munitions would be purchased for the British Armed Forces from private firms;

(ii) no further licences would be issued to private firms for the export of arms or munitions to foreign countries or to British Dominions overseas.

(b) Arms and munitions would be defined in these announcements to mean the articles already listed in the Order in Council of 1931, which now governs the export of war material.

(c) Regulations would be prepared and issued laying down the component parts of arms and munitions which private firms would not be allowed to manufacture for the Home Government or for export.

(d) Regulations would be issued laying down what specialised machinery for armament production private manufacturers would be forbidden to possess.

(e) To prevent the transference of private capital and private experts to foreign countries where Private Manufacture might not have been abolished, the Government should also forbid any British subject:

(i) to invest capital in armament production in foreign countries or in British Dominions overseas;

(ii) to take service in private firms engaged in armament production in foreign countries or in British Dominions overseas;

(iii) to engage in any form of private trade or commerce in arms or munitions of war, whether at home or abroad;

(iv) to enter the employment of national arsenals in foreign countries or British Dominions overseas without the previous consent of His Majesty's Government in the United Kingdom.

(f) The above decisions would be made legally effective by Order in Council or by Parliamentary legislation as the Law Officers of the Crown might find to be necessary. Offences against these Orders in Council or Statutes would be made punishable by heavy penalties, including, if necessary, the loss of British nationality.

The Technical Aspects of the Process of Nationalisation.

183. I submit to the Commission that the nationalisation of the armament industry would, from the technical point of view, be an exceedingly simple matter. I believe this to be true for the following reasons:—

(a) There are already in existence Government Arsenals, Dockyards and Factories which have in the past produced almost every possible kind of armament requirement.

(b) The expert knowledge of those in charge of these Government establishments, and the equipment which these establishments already possess, would enable them immediately to undertake almost any kind of armament production on which they are not now engaged.

(c) If for the production of some types of arms these Government establishments required new plant, the knowledge of their directors and the skill of their workers would enable them to use the new plant and engage in these unfamiliar processes of armament production without difficulty.

(d) Apart from actual production, the Government establishments already comprise highly organised services for armament design, for testing of armaments, for repair, etc.

(e) The Government already possesses a machinery for co-ordinating orders from the Service Departments, and for organising the delivery of finished goods to the Armed Forces of the Crown. This machinery might be more highly developed and might, with advantage, assume the kind of organisation which was given to the Ministry of Munitions during the War. The nucleus, however, already exists.

(f) If the export of arms continued from Government arsenals, it would probably be necessary to organise a National Armaments Board of the kind proposed to the Commission by Colonel Carnegie. This is in any case desirable on other grounds. Its organisation would present no difficulty of any kind.

Would the existing capacity of the Government Arsenals and Factories suffice?

184. As I have suggested in a previous section of my statement, it is not possible to say in advance whether the capacity of the existing Government arsenals would suffice for the production of the armaments required by the Army and Navy and Air Force, or whether this capacity would have to be increased. I have pointed out above that:

(a) In this regard everything would depend on whether or not a Disarmament Treaty is made in the near future, and on how much the annual requirements of arms and munitions might be reduced by that Treaty.

(b) If the reductions made were approximately those proposed in the draft Treaty laid before the Disarmament Conference by the British Prime Minister on 14th March, 1933, the capacity of existing arsenals and factories would be more than sufficient.

(c) If greater capacity is required, Woolwich Arsenal and others of the Government Ordnance Factories could be largely expanded without the erection of new shops.

(d) If additional machinery and plant were required for such expansion of existing Government Factories, it could either be acquired from the existing plant of the private firms, or new machinery could be obtained, as might be deemed most advantageous. No technical difficulty could conceivably arise in this regard, since the scrapping of old machinery and the installation of new machinery is a matter of routine in all Government Ordnance Factories, as it is in engineering works of all descriptions.

(e) If further capacity were required beyond that which could be obtained by the expansion of the existing Arsenals and Ordnance Factories, the Factories of the private firms could be purchased and taken over. As the evidence of the Union of Democratic Control has so admirably shown, most of the shops which produce arms are segregated from the rest of the non-armament factories of the private firms; thus, for example, there would be no difficulty in taking over the gun pits at Elswick, without taking over the rest of the plant. If no new Treaty of Naval Disarmament is made, and naval armaments continue to expand, it might be necessary to take over some of the shipbuilding yards now used by private firms for the construction of ships of war.

(f) If national Air Forces are not abolished by international agreement, it would be necessary to take over some, or all, of the factories of private firms now engaged in the manufacture of military aircraft. In practice, however, it would almost certainly be advantageous to suppress a considerable number of these factories and to expand others.

Compensation for the shareholders of Private Armament Firms.

185. No difficulty should arise in arranging compensation to the shareholders of the private firms now engaged in armament manufacture.

Thus:

(a) If machinery or factories were purchased by the Government from such firms, payment would be made on the basis of a fair market valuation. If a dispute arose about the fairness of the price offered, the matter could be submitted to arbitration by impartial experts. The Government could be trusted not to do injustice to the shareholders of the private firms.

(b) It might also be necessary to compensate the shareholders of the private firms for the loss of prospective profits on the production of the machines and factories not taken over by the State. Except in so far as these machines and factories could be adapted to the production of "peaceful" goods, the capital invested in them would become a dead loss as the result of the abolition of Private Manufacture. What, if any, compensation should be made should be determined by arbitration. The arbitrators would no doubt take into account two main considerations:—

(i) The private firms have been encouraged to invest capital in these factories and machines by the deliberate and sustained policy of His Majesty's Government, who have led them to expect the indefinite continuance of armament orders in times to come.

(ii) Subsidies, direct and indirect, have, however, been paid by the Government to the private firms for the maintenance of specialised armament plant when it has been standing idle. Again, on the basis of the facts of each particular case, there should be no insuperable difficulty in reaching an equitable settlement.

(c) It may be pointed out that even taking over a large proportion of the plant of private firms would not involve the Government in a very large scale capital investment. As a tentative indication of what might be required, I suggest that the figure would not exceed £20,000,000—a very small amount in view of the annual expenditure of the nation on war material of all kinds.

(d) It might also be necessary to provide compensation for expert workers thrown out of work by the abolition of Private Manufacture. I give reasons below for thinking that the number of such workers would be very small. If a grant of public money were required for this purpose, public opinion would no doubt regard it as justified, unless it were open to objection on other grounds of principle.

How far should Nationalisation be carried?

186. As said above, it would be necessary for the Government in their announcement of the abolition of Private Manufacture to lay down clearly what component parts private firms would no longer be allowed to make, either for home consumption or for export, and what specialised machinery they would not be allowed to possess. So far as the fulfilment of the social and political purposes of the policy of abolition is concerned, I need add nothing to what I have already said on this point in paragraphs 157 *et seq* of my evidence above dealing with the alleged difficulties of "definition."

187. There is, however, a further point which would arise, i.e., whether considerations of efficiency would not make it wise to extend nationalisation beyond the point which I there suggested would be necessary for the fulfilment of these social and political purposes.

188. For example, it would arise for consideration whether the Government should not establish its own Steel Plant in order to provide its own factories with their forgings.

On this point I am in full agreement with the evidence presented by the Union of Democratic Control, and I venture to cite in further support of their view the evidence presented to the McKinnon Wood Committee in 1918 by the Superintendent of the Gun and Carriage Factories, Colonel M. J. C. Dennis, C.B.:

"Woolwich was the only armament-making concern which was dependent on others for supply of steel. The supply of steel being almost entirely in the hands of the Steel Ring, competition was practically absent, and Woolwich prices were affected by being saddled with an extra profit to the firm supplying the steel, over which they had no control. This applied, to a large extent, to carriages and mountings which were now universally of steel, but particularly to guns. In heavy guns, practically half the total cost of the finished gun body was the cost of the raw steel. The only remedy would seem to be the establishment of Government steel works in some suitable centre, but certainly not at Woolwich, to supply the Government factories with steel. An example of the degree to which Woolwich was even now in the hands of the steel-making firms occurred recently. Woolwich was asked to manufacture certain guns urgently required by a certain date. They agreed to do so, subject to the supply of the necessary steel to make the forgings, within six weeks. Supply of the steel was in the hands of the Ministry, who in due course informed Woolwich that the steel could not be supplied, but that the forgings could be supplied. Colonel Dennis pointed out in reply that they preferred to make their own forgings, and that, if forgings that, admittedly, were not already made could be supplied, the steel from which to make them must be available. In the end, however, Woolwich was supplied with forgings which they could have made better and more cheaply, the obvious and only inference being that there was more profit in the supply of forgings, and that even the Ministry could not enforce the supply of blooms in lieu of forgings."^{*}

189. I would further suggest that it would probably be economically advantageous for the Government to establish its own plant for the production of most of the metal and alloy component parts of aircraft.

190. Of course, as I have said above, the Government should be wholly responsible for all specialised forms of armament production now left to private firms, e.g., the manufacture of tanks, aircraft, armour-plate, heavy gun mountings, etc.

^{*} Quoted from *War or Peace: The National Control of Armaments*, by Gilbert Slater, M.A., D.Sc.

CHAPTER XVI

The Alleged Difficulties of Working a Government Monopoly of Armament Production

Fluctuation of Demand and, therefore, of the Scale of the Armament Industry.

191. It is argued in favour of Private Manufacture that, owing to political causes, the armament industry is subject to fluctuations more violent than that of any other trade. It is pointed out that in the period of 20 years which preceded the war of 1914, the industry was continually increasing in scale and output; that during the War it was expanded to such a degree that it employed a great part of the total resources of the nation; that after the War there was a period of rapid contraction, followed by almost total stagnation; and that, since the Disarmament Conference ceased its sittings in 1933, the process of expansion has once more begun. It is said that the system of Private Manufacture enables

the Government to keep the volume of employment in State arsenals and factories at a moderate but steady minimum throughout times of expansion and contraction; and that the private armament firms can take up the additional orders which are available when armaments expand, while during periods when the armament trade is slack, they can employ their plant in producing "peaceful" products for the general market, as Government arsenals cannot.

191A. I suggest to the Commission that this argument should be considered separately on the basis of the two different hypotheses I have discussed above, namely, that of a system of organised international disarmament and peace, and that of international anarchy and armament competition.

Under a system of International Disarmament.

191b. It is plain that under a system of international disarmament this alleged difficulty has no substance. The terms of the Disarmament Treaty would lay down the permitted amounts of armament which each signatory State was allowed to possess. The Government of each State could, therefore, plan its armament production from the long period point of view, and could lay down in advance a regular annual programme which would keep the work in its Government Arsenals at a steady figure.

An examination of the naval construction done during the years 1920-1935, while the Treaties of London and Washington were in force, will illustrate the point. It will incidentally show that all the naval requirements of the nation under these Treaties could quite easily have been supplied by the Royal Dockyards and Government factories.

In Conditions of International Anarchy.

192. But even on the basis of the second hypothesis, namely the system of international anarchy, the argument outlined above is not wholly convincing. It is at least possible to contend that the greater the fluctuations in the demand for armaments the stronger the case for nationalisation.

I submit the following points for the consideration of the Commission:—

(a) The risk involved in the contraction of armament orders, with its consequences of unremunerated capital, idle plant and widespread unemployment, ought to be borne by the State rather than by private firms. The fluctuations in armament demand result directly from national policy for which the Government is responsible, and in formulating which the private manufacturer ought to have no share. There is no doubt that under the present system the fluctuations of armament demand may cause severe hardship to the shareholders, the managing staff and the workers in armament firms; this is proved by the fact that the directors of such firms have frequently, and with evident sincerity, protested in vigorous terms against this hardship.

(b) When the Government had assumed full direct responsibility for the production of all armament requirements, it would have a greater incentive to equalise its demand from year to year and thus to minimise the fluctuations which occur. This incentive might perhaps affect its armament policy though not, I believe, in the direction of stimulating an increase in the level of armaments which it maintains. It would, at least, bring strong pressure on the fighting Services to plan their requirements in advance and not to ask for large unforeseen deliveries at the last moment except in case of urgent political necessity.

(c) The private firms cannot beyond a certain point transfer their plant from armament work to production of peaceful products. The argument on this point is, as a rule, greatly overstated. I cite, for the consideration of the Commission, the judgment of a distinguished private manufacturer of armaments, Sir Robert Hadfield:

"It is doubly unfortunate that the cost of putting these theories (i.e., disarmament) into practice should fall in the main upon an industry which is already struggling against unfair economic conditions which are beyond its control.

"The politician is always ready with advice to turn over to peaceful products, not realising that highly specialised plant cannot be diverted in this way, and further, that the supply of those peaceful products already far exceeds the demand, so that such a remedy, even if practicable, would merely add to the difficulties of other sections of the trade. Apart from this, such a course would represent the loss to the nation of those specialised sources of production—the men and the machines—built up by years of research, which saved the situation in 1914, and which could not be extemporised in any future emergency."*

* *Times*, March 18, 1930.

The "costly plant" to which Sir Robert Hadfield refers consists of the specialised plant required for making small arms, machine guns, small arms ammunition, artillery of all calibres, gun mountings, for turning shells, for filling shells, for making armour plate, etc. At the moment it also includes the machinery required for making military aircraft, since the alternative civil market can hardly be said to exist. It applies also to the plant for making many chemical products required for war, since these plants are already, for war reasons, expanded beyond their economic limits and, therefore, *ex hypothesi*, far beyond all possible requirements in peaceful goods. There is not, therefore, a very high proportion of the existing armament plant which can be switched over to making "peaceful" goods.

Moreover, as Sir Robert Hadfield points out, the markets for most "peaceful" products which armament firms can make are already glutted by the production from normal sources.

(d) Private manufacturers are far better able to transfer their plant to peace production when they know definitely that they need not expect any further armament orders in times to come. For even in respect of such plant as can be "switched over" from making war material to the production of "peaceful" objects, the process of transfer is necessarily wasteful. That a complete and final transfer can, however, be successfully effected was proved by Krupp in the years which followed the making of the Treaty of Versailles.

(e) The above points show:

(i) That much of the plant in private armament factories cannot be adapted to peaceful production in times of reduced armament demand;

(ii) That the "switch over" of such plant as can be so adapted is a wasteful process;

(iii) That even if such plant can be switched over there is not always a market for its products.

These propositions have been amply proved by the unfortunate experience of many armament firms during the years which followed the War.

Alternative Work in Government Arsenals.

193. Finally, it is not true that Government arsenals cannot switch over to making "peaceful" products as adequately as private firms. On the contrary, there are many forms of alternative work which could be given to Government establishments in times of reduced armament demand. I venture to refer to:

(i) A report prepared by a Government Committee presided over by the Right Hon. Arthur Henderson, M.P., in the year 1907.* In this report the Committee made a large number of proposals with regard to alternative work which could be done by Ordnance factories in periods when armament demand is slack. They proposed that the Ordnance factories should make many articles required by the Government Departments. Some of these articles used in earlier times to be supplied by the Ordnance Factories, but more recently had been ordered from private firms. Many of them were of such a nature that large stocks could profitably be made in slack times with the certainty that they would be needed in case of war and that they would not become obsolete with the passage of time.

I would draw the attention of the Commission particularly to paragraphs XXVII *et seq.* of the report and to appendices XV, XVI, XVII and XXI:

(ii) A petition presented to the Government by the "All Grades Committee" of Woolwich Arsenal in the year 1919.

In this petition it was proposed, among other suggestions, that the Ordnance factories should be employed to produce railway supplies. Such supplies would no doubt be needed on a large scale by the armed forces, if war should occur again.

* Cd. 3514, 1907.

They also proposed the manufacture by Ordnance factories of other articles (e.g., wagons) of which stocks could economically be built up at times when the demand for armaments proper was slack.

(iii) The McKinnon Wood report, in which it is proposed that the Ordnance factories should be employed to manufacture the articles required for the mechanical transport of the Armed Forces.

193a. It is true that if such a system of alternative work for Government establishments were brought into force, its first effect would be to transfer the hardships caused by the fluctuations of armament demand to those private manufacturers who had previously furnished the non-warlike articles which the Government establishments would in future produce. This transference of hardship from private manufacturers of arms to the private manufacturers of other supplies would be a matter for regret; but once the change over had been made these private firms would adjust themselves to the loss of the Government market and after this first adjustment had been effected, no hardship would be felt.

(f) If, unhappily, no Disarmament Treaty is made—and this is the hypothesis on which the present discussion is based—the staff of the Government establishments could be used in slack periods to prepare the industrial mobilisation of the general engineering resources of the nation for war expansion. Thus:

(i) The design and drawing departments could prepare supplies of specifications, blue prints, and instructions for the engineering firms who will be called into armament production when war begins.

(ii) The skilled workers could be employed in making large reserves of the jigs and gauges which the private engineering firms will require. This, I believe, is already done in the State arsenals of the United States of America and Czechoslovakia. It is the best kind of work on which to employ those highly skilled Government arsenal workers who will be responsible in case of war for helping to carry out the processes of industrial mobilisation.

(iii) The lower grades of managerial staff, the foremen and perhaps also skilled workers, could be sent round the country to private firms to assist in instructing them in time of peace as to the functions they will be called upon to perform when industrial mobilisation has to be carried out.

(iv) The remaining workers could be employed in Government establishments in making reserve supplies of specialised armament machinery and machine-tools which will be required when war breaks out.

I recognise, of course, that these proposals would involve certain expenditure which might be condemned as wasteful. It would at least have the advantage of greatly increasing the efficiency of industrial mobilisation when, if ever, it had to be carried out. Many people object to the prospect of industrial mobilisation; but it would be an inevitable result of war, if war should happen, and its preparation in time of peace is not open to the objections which exist to the system of Private Manufacture.

(h) If the fluctuations in armament demand reach such a point that the armament requirements of the nation could not be met without a very great expansion of the plant which it had been deemed wise to maintain in the Government arsenals in time of peace, the additional output required could be obtained by the adoption of the plan laid before the Commission in the evidence submitted by Mr. Arnold Forster, namely, that plant suitable for armament production should be temporarily leased by the State from private firms. This plan could be applied to the slipways required in constructing ships of war; to factories in which some of the components of gun ammunition could be made; to some of the chemical plant required for the production of explosives, etc.; and to aircraft factories.

By this method the Government would eliminate the motive of private profit from the manufacture of the additional quantities of arms which it required beyond the capacity of its Government factories to provide, and would do so without saddling itself with the maintenance of greater plant than it might desire to maintain in normal times.

Conclusion concerning Fluctuations in Armament Demand.

194. I therefore submit the following conclusions to the Commission:

If conditions of international anarchy continue, and if those conditions produce the same fluctuations in armament demand in the future as they have produced in the past, the community will inevitably suffer loss and inconvenience of many kinds. But:

(a) If the production of arms were made a Government monopoly, the Government would have a keener stimulus to diminish the effects of these fluctuations than they have now.

(b) The Government establishments could be given many kinds of alternative work which could be spread over periods when armament demand was slack and which would not cause undue loss to the Exchequer.

(c) The Government establishments could play a most effective part in preparing the industrial mobilisation which would be required if war occurred.

(d) The loss to the community would fall where it belongs, namely, on the Government, whose policy is, in the last resort, responsible for the fluctuations of armament demand.

The breaking up of expert staffs.

195. It is sometimes said that yet another serious disadvantage would result from the abolition of Private Manufacture, namely, that the expert staffs of designers, managers and workers now in the employ of the private armament firms would be broken up, and their irreplaceable services thus lost to the nation. This, it is said, would be a most serious handicap to the nation if war should ever again break out. (cf. e.g. the statement by Sir R. Hadfield quoted in paragraph 192 above.)

This contention rests on the assumption that the abolition of Private Manufacture will necessarily involve the total unemployment of those now engaged in making armaments in private firms. This assumption is without foundation. The numbers employed in armament production will depend upon the volume of arms to be produced. If no Disarmament Treaty is made and if, therefore, armaments remain at their present level, the Government dockyards, arsenals, and factories would require to employ approximately the same number of people as are now employed in the private armament firms. Thus:

(a) The managerial staff of private armament factories would either be kept on as State servants in their present factories, if these were nationalised, or would be given preferential treatment in the recruiting of the additional staff which the expanded Government establishments would require.

(b) The designers now attached to private firms would either be kept at their present posts in Government employ, or would be transferred to the Drawing Office at Woolwich Arsenal, or to the Royal Corps of Naval Constructors and Aeronautical Designers.

(c) Foremen and skilled workers would almost certainly be taken into Government employ, especially if the Government adopted the plan described in paragraph 193a above for the preparation in times of peace of reserve stocks of jigs, gauges, etc., for industrial mobilisation.

196. The numbers of skilled armament managerial staff, designers and workers in the country will therefore be approximately the same whether they are employed in private or in Government establishments. But it may well be contended (cf. paragraphs 143 and 144 above) that their concentration in Government employ would greatly increase their effectiveness as a cadre for organising the expansion of armament production when war occurs.

The difficulty alleged to result from the fact that great numbers of articles required for Combatant use by the Armed Forces are not at present made by Government Arsenals and Ordnance Factories.

197. This difficulty has in some measure been dealt with in the argument presented in the chapter devoted to the subject of "definition." It was there suggested:

(a) That many important articles not now made by Arsenals, e.g., armour-plate, tanks, aircraft, marine engines, would certainly have to be made in Government establishments when Private Manufacture had been abolished.

(b) That many of the smaller articles now purchased from private manufacturers, e.g., optical

glass, magnetos, etc., could still be obtained from private factories without seriously obstructing the fulfilment of the purpose for which the abolition of Private Manufacture is desired.

(c) That the adoption of the principles proposed in the section on "definition" (paragraphs 161 *et seq.* above) in respect of component parts would cover the vast majority of all articles now purchased by the Government from private firms.

(d) That there would be no difficulty in making in Government factories the component parts which would fall within the definitions there suggested. At the end of the War Woolwich Arsenal was well described as a "University of Arms," turning out virtually everything needed for arms of all descriptions.

CHAPTER XVII

Summary of Conclusions

198. As the result of the considerations set forth in the preceding sections, I venture to submit the following conclusions for the consideration of the Commission:

(1) The present system of Private Manufacture involves evils which are officially admitted to exist, and which it is desirable in the public interest to remove.

(2) The alleged advantages of the system of Private Manufacture are far less important than is generally supposed.

(3) In particular, it is a fallacy to believe that the existence of a private armament industry would facilitate the expansion of armament production in time of war.

On this, as on other technical points which are urged in favour of the present system, the balance of advantage would appear in fact to lie with the system of Government monopoly.

(4) The alleged technical difficulties of abolishing Private Manufacture and establishing a system of Government monopoly are much less than is often believed. There is no problem involved in the establishment of a Government monopoly for which a practical solution cannot quite easily be found.

(5) The most satisfactory method of removing the evils due to the existing system would be by the complete abolition of Private Manufacture. I venture respectfully to submit that the Royal Commission would most adequately discharge its task by recommending to His Majesty's Government that this abolition of Private Manufacture should be carried through, if necessary by Great Britain acting alone.

(6) It would, however, be desirable in the national interest that Private Manufacture should be abolished not only in Great Britain, but throughout the world. For so long as the private vested interest in armaments continues to exist elsewhere, there will remain the danger that its influence will succeed in obstructing disarmament or in raising the existing level of national armed strength in other countries and that it will thus impose a consequential increase in armament expenditure upon the British people. His Majesty's Government should therefore propose general abolition by international agreement.

(7) Whether or not Private Manufacture is abolished, it is desirable that national and international measures should be taken to control the trade in arms. These measures should include:

(a) The adoption of an international system of licensing and inspection, similar to that recently proposed by the United States Government, and including:

(i) The Government licensing of armament manufacture (if Private Manufacture is permitted at all).

(ii) The special licensing of all exports or imports of arms.

(iii) The fullest publicity for all armament orders before they are executed.

(iv) The control and inspection of all licences and of the books and factories of Private Armament Firms (if permitted to exist) by international commissions established by the League of Nations.

(8) These measures for dealing with the trade in arms should be linked to, and indeed founded upon, the provisions of the Covenant and the Pact of Paris for the Renunciation of War. In pursuance of the obligations of these Treaties, His Majesty's Government should make it a binding rule of their foreign policy to allow no export of arms:

(a) To any State which is a party to an international dispute under consideration by an international tribunal.

(b) To any State which has resorted to war in violation of its international engagements.

(9) His Majesty's Government should endeavour to secure the acceptance of this principle by the other Members of the League.

(10) If Private Manufacture is not abolished, then as an alternative the following measures should be taken:

(a) "Public Utility" control over private firms to limit the prices or profits;

(b) The establishment of a National Arms Board with a monopoly of the home and foreign marketing of arms.

(11) In pursuance of the obligations of Article 8 of the Covenant, His Majesty's Government should endeavour to secure international acceptance for a system of the fullest possible publicity for all the processes of armament manufacture and of the trade in arms.

ANNEXES

ANNEX A VICKERS GROUP.

Vickers, Ltd., is now a holding company and its only fixed assets are investments in other companies. It owns all shares of the following subsidiary companies:—

1. Airship Guarantee Co., Ltd.
2. Electric Holdings, Ltd.
3. Cooke Troughton & Simms, Ltd.
4. Vickers Train Lighting Co., Ltd.
5. Robert Boby, Ltd.

6. Manufacturers Estates and Assets Co.
7. Vickers (Aviation), Ltd., owning:—
Supermarine Aviation Works (Vickers).
8. 99 per cent. of Ioco Rubber and Waterproofing Co., Ltd.

Vickers, Ltd., has substantial holdings in Italian and Roumanian companies.

Since July, 1935, when Vickers, Ltd., bought the shares held by the Armstrong-Whitworth Group, Vickers, Ltd., owns practically all shares in Vickers-Armstrong, Ltd.

This company controls:—

Whitehead Torpedo Co., Ltd.
Vickers (Ireland), Ltd.
Thames Ammunition Works, Ltd.
Placencia de las Armas Co., Ltd.
Variable Speed Gear Ltd.

Vickers-Armstrong also has a large holding in a foreign company.

By the terms of its articles, Vickers-Armstrong is not bound to publish any list or particulars of the securities or investments held by the company, or to give any information concerning same to any shareholder, unless instructed to do so by an Extraordinary Resolution in General Meeting, but in January, 1923, it is known that Vickers-Armstrong bought from Vickers, Ltd., all shares and interests in the following companies:—

Kabushiki Kwaisha Nihon Seikoshō (Japan Steel Works).
S.A. Le Nickel.
Steel Manufacturers Nickel Syndicate, Ltd.
High Speed Steel Alloys.
High Speed Steel Alloys Mining Association.
Société des Etablissements Minière de Starachowice.

Micell Bearings, Ltd. (share capital only).
Electrode Company of Sheffield, Ltd.
Usinele Metalurgice din Copșa, Mica și Cugir.
Experiencias Industriales S.A.

Vickers-Armstrong also bought from Vickers, Ltd., all its benefits from and arrangements with:—

Sociedad Española.
S.A. Acieres et Domaines de Resita.
Kabushiki Kwaisha.
Vickers Schneider.
Terni Company.

Similarly, Vickers-Armstrong bought from Armstrong-Whitworth Group shares and interest in:—

Kabushiki Kwaisha.
High Speed Steel Alloys.
Thames Ammunition Works.
S.A. Le Nickel.
Steel Manufacturers Nickel Syndicate, Ltd.
High Speed Steel Alloys Mining Association.
Sociedad Española de Construcción Naval.

Vickers, Ltd., Vickers-Armstrong, and Cammell Laird own between them practically all the shares of The English Steel Corporation.

This company controls:—

Taylor Brothers & Co., Ltd.
Darlington Forge, Ltd.
English Steel Corporation (Australia Prop.), Ltd.
Industrial Steels, Ltd.

Vickers, Ltd., and Cammell Laird together own a controlling interest in:—

Metro-Cammell Carriage Wagon and Finance Co., Ltd.,

which company incorporates and includes five other companies and controls four other companies:—

Cammell Laird owns Tranmere Development Co., Ltd.,

and holds a large number of shares in

English Electric Co., Ltd., which owns:—

Dick Kerr Works.
Ordnance Works, Coventry.
Phoenix Works.
Siemens Works, Stafford,
and controls:—
Willan & Robinson.

(Reference for above list:—

Somerset House and Stock Exchange Year Book, 1935.)

E. I. DU PONT DE NEMOURS & COMPANY.

Subsidiary Companies wholly owned by Du

Pont:—

1. American Glycerin Co.
2. Associated Securities of Canada Ltd.
3. Du Pont Building Corporation.
4. Du Pont Cellophane Co., Inc.
5. Du Pont S.A.
6. Du Pont Rayon Co.
7. Du Pont Securities Co.
8. Du Pont Viscoid Co.
9. The Pacific R. & H. Chemicals Corp.
10. The Grasselli Chemical Co.
11. Hotel Du Pont Co.
12. International Freight Corp., Inc.
13. National Ammonia Co., Inc.
14. Rokeby Realty Co.
15. Perth Amboy Chemical Works.

Subsidiary Companies not wholly owned:—

		Percentage Stock Owned.	Percentage Voting Rights.
1.	General Motors Securities Co.	Common 100	94.3
2.	Societa Anonima Mazzucchelli (through Du P. Viscoid Co.)	Common 90 6% bonds 100	90
3.	Societa Italiana della Celluloide (through Du P. Viscoid Co.)	Common 70 6% bonds 100	70
4.	Krebs Pigment and Color Corporation (through Grasselli Chemical Co.)	Common 70	70
5.	Acetol Products Inc.	Common 72.2 Common A 35.1	62.9
6.	Remington Arms Co. Ltd.	Common 56.06 7% pref. 92.94	56.47
7.	Du Pont Film Manufacturing Corp.	Common 51	51
8.	Industrias Quimicas Argentas Duperial S.A. Industrial y Commercial ...	Common 50	50
9.	Old Hickory Chemical Co (through Grasselli Co. 15%); (through Du P. Securities 35%).	Common 50	50
10.	Rio Grande Securities Co.	Common 50	50
11.	Co. Mexicana de Explosivos S.A.	18% Notes 50	
12.	Equitable Powder Manufacturing Co.	Common 49	49
13.	Leathercloth Proprietary Ltd.	Common 49	49
14.	Duco-Aktiengesellschaft	Common 49 " B " 100	49
15.	Nobel Chemical Finishes Ltd.	Common 48.7	48.7
16.	Canadian Industries Ltd (through Ass. Securities Canada)	Common A 46.85	46.85
17.	Co. Sud-Americana de Explosivos	Common 42.39	42.39
18.	Société Française Duco S.A.	" A " 26.5 " B " 100	35
19.	Niacet Chemicals Corporation	Common 33.33 7% pref. 33.33	33.33
20.	General Motors Corporation	Common 23.45	23.45
	ditto through Gen. Motors Securities Co.	Common 4.81	4.81
21.	Dynamit Actien-Gesellschaft	Common 7.98	7.98
22.	Deutsche Gold und Silber Scheideanstalt	Common 3.5	3.5
23.	Bakelite Corporation	Common 4	4
24.	I. G. Farbenindustrie A.G.	Common .38	.38

Remington Arms Co. (6) owns:—

25. The Peters Cartridge Co.
26. Remington Cutlery Works.
27. Remington Cash Register Co.

(Reference for above list:—

Hearings before Senator Nye's Special Committee Investigating the Munitions Industry. Part 5. Sept. 12, 13, 14, 1934. Exhibit 456, p. 1282, Du Pont's investments in other companies.)

Poor's Industrial Volume, 1933, also gives the following as subsidiary companies not wholly owned by Du Pont De Nemours & Co.:—

	<i>Per cent. stock owned.</i>
Bayer-Semesan Company, Inc.	50-00
Celastec Corporation	50-00
Gardinol Corporation	55-00
Kinetic Chemicals, Inc.	51-00
C. G. Bartlett & Cia Ltda.	60-00
Societe Francaise Fabrikoid S.A.	25-00

IMPERIAL CHEMICAL INDUSTRIES LIMITED.

Imperial Chemical Industries Ltd. owns the following Subsidiary Companies:—

1. I.C.I. Alkali Ltd. (formerly Brunner Mond & Co.).
2. I.C.I. Explosives Ltd.
3. British Electric Detonator Ltd.
4. British Dyestuffs Corporation Ltd.
5. British Alizarine Company Ltd.
6. I.C.I. (General Chemicals) Ltd. (formerly United Alkali Ltd.).
7. I.C.I. (Fertilisers and Synthetic Products) Ltd.
8. I.C.I. (Lime) Ltd. (formerly Buxton Lime Firms Co.).
9. I.C.I. (Metals) Ltd. (formerly Kynochs Ltd.).
10. Broughton Copper Co., Ltd.
11. I.C.I. (Rexine) Ltd.
12. British Leather Cloth Manufacturing Co.
13. I.C.I. Insurance Ltd.
14. Lighting Trades Ltd.

Imperial Chemical Industries Ltd. has direct controlling interest in the following companies:—

Through I.C.I. Alkali Ltd.:—

1. Magadi Soda Co., Ltd.

Through I.C.I. Explosives Ltd.:—

2. Nobel Explosives Co., Ltd.
3. Curtis's & Harvey Ltd.
4. Lancashire Explosives Co., Ltd.
5. Bickford, Smith & Co., Ltd.
6. Sedgwick Gunpowder Co., Ltd.
7. W. H. Wakefield & Co., Ltd.
8. Liverpool Magazines Co., Ltd.
9. British Westfalite Ltd.

10. R. & T. Jack & Co., Ltd.

11. Patent Electric Shot Firing Co., Ltd.

12. Roburite & Ammonal Ltd.

13. Alexander Walker & Co., Ltd.

Through British Alizarine Co., Ltd.:—

14. British Synthetics Company, Ltd.

15. Scottish Dyes Ltd.

16. Oliver Wilkins & Co., Ltd.

Through I.C.I. (Gen. Chemicals Ltd.):—

17. Cassel Cyanide Co., Ltd.
18. Castner-Kellner Alkali Co., Ltd.
19. Chemical and Metallurgical Corp.
20. Chance & Hunt Ltd.
21. Lancs. Public House Trust Ltd.
22. Mouldrite Company, Ltd.

Through I.C.I. (Fertilisers):—

23. Casebourne & Co. (1926), Ltd.

Through I.C.I. (Metals) Ltd.:—

24. British Copper Manu. Ltd.
25. Allen Everitt & Sons, Ltd.
26. Elliotts Metal Co., Ltd.
27. John Marston Ltd.

28. Excelsior Motor Radiator Co.

29. Lightning Fasteners Ltd.

Through Broughton Copper Co.:—

30. John Bibby, Sons & Co. (Garston), Ltd.

31. Welsbach Light Co., Ltd.

32. Stealite & Porcelain Products, Ltd.

33. Paper Goods Manufacturing Co.

34. I.C.I. of Australia and New Zealand.

35. Finance Company of Great Britain and America.

Imperial Chemical Industries, Ltd., has preponderating interest in the following companies:—

1. African Explosives & Industries, Ltd. (I.C.I., 50 per cent., De Beers Consolidated Mines, Ltd., 50 per cent.).

This company controls:—

Cape Explosives Works, Ltd.

2. Scottish Agricultural Industries, Ltd. (£551,443 out of £822,226 ordinary shares).

This company controls:—

Charles Tennant & Co. of Carnoustie Ltd.

Aberdeen Commercial Co., Ltd.

Barclay Ross Hutchison Ltd.

Alexander Cross & Sons Ltd.

Cross's Chemical Co., Ltd.

J. & J. Cunningham Ltd.

John Miller & Co. (Aberdeen), Ltd.

Daniell Wylie & Co., Ltd.

3. Amal, Ltd. (formerly Amalgamated Carburetors Ltd.).

4. F. Crane Chemical Company, Ltd.

5. Nobel Chemical Finishes Ltd.

6. Naylor Brothers (London) Ltd. (paint and varnish).

7. Portland Glass Company, Ltd.

Imperial Chemical Industries Ltd. has established following selling companies:—

Brunner Mond & Co. (Japan), Ltd.

Imperial Chemical Ind. (China) Ltd.

Imperial Chemical Ind. (Levant) Ltd.

Imperial Chemical Ind. (India) Ltd.

Imperial Chemical Ind. (Peru) Ltd.

Imperial Chemical Ind. (Malaya) Ltd.

I.C.I. (Argentine) Ltd.

Cia Imp. de Industrias Quimicas de Chili.

Cia Imp. de Industrias Quimicas de Brasil.

Imperial Chemical Industries Ltd. is associated with the following companies:—

Cartoucherie Orbea Argentina.

Cia Sud-Americana de Explosivos.

S.A. Industrial y Comercial Rivadavia.

Imperial Chemical Industries Ltd., jointly with E.I. Du Pont de Nemours, is directly interested in the following associate company, with which they have an agreement for exchange of inventions which gives the associate Company exclusive production and selling rights of all inventions in Canada; Du Pont exclusive rights in U.S.A., Mexico, Central America and West Indies; and I.C.I. the exclusive rights within the British Empire, and gives I.C.I. and Du Pont the rights within any and all other countries:—

Canadian Industries Ltd.

which Company owns:—

Arlington Co. of Canada Ltd.

Canadian Ammonia Co., Ltd.

Canadian Explosives Co., Ltd.

Canadian Fabrikoid Ltd.

Canadian Salt Co., Ltd.

Dominion Cartridge Co., Ltd.

Flint Paint & Varnish Co., Ltd.

Grasselli Chemical Co., Ltd.

Triangle Chemical Co., Ltd.

and controls Canadian Safety Fuse Co., Ltd.

Imperial Chemical Industries Ltd. has investments in and trade connections with the following Companies:—

E.I. Du Pont de Nemours and Co. of U.S.A.
I.G. Farbenindustrie of Germany.
International Nickel Co. of Canada.
General Motors Corporation of U.S.A.
Allied Chemical Co. of U.S.A.

(Compiled from Stock Exchange Year Book, 1935, and Moody's Statistics, 1935.)

ANNEX B LEAGUE OF NATIONS.

Conf. D./C.G. 48.
Geneva, 3rd March, 1933.

CONFERENCE FOR THE REDUCTION AND LIMITATION OF ARMAMENTS.

COMMITTEE FOR THE REGULATION OF TRADE IN AND PRIVATE AND STATE MANUFACTURE OF ARMS AND IMPLEMENTS OF WAR.

Question of the abolition of private manufacture of arms.

The Danish, French, Polish and Spanish Delegations submit the following considerations:—

1. Article 8, paragraph 5, of the Covenant of the League of Nations draws the attention of Members of the League to the dangers inherent in the private manufacture of arms:—

"The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety."

For Members of the League, the solution of this problem must therefore be of an international character.

Everywhere the private manufacture of arms and ammunition, like all other private economic activities, aims primarily at a profitable return upon the invested capital. There must therefore be a constant increase in the demand for arms, which can only be maintained in an atmosphere of strained international relations.

For examples of the evil effects of such enterprises reference may be made to the Report of the Temporary Mixed Commission of 15th September, 1921:—

"Armament firms have attempted to bribe Government officials both at home and abroad.

"Armament firms have disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armament expenditure.

"Armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries.

"Armament firms have organised international armament rings through which the armament race has been accentuated by playing off one country against another.

"Armament firms have organised international armament trusts which have increased the price of armaments sold to Governments."

The situation has not improved since 1921. Without mentioning well-known events which occurred in connection with the 1927 Geneva Naval Conference, we may quote the Latvian Government's reply to the enquiry organised in 1926 by the League of Nations. The Latvian Government's statement was as follows:—

"The Latvian Government, however, thinks it desirable to indicate certain concrete examples drawn from its own experience:—

"(a) Cases have occurred in which private armaments firms endeavour to induce Governments to purchase war material by encouraging competition between neighbouring States;

"(b) After selling out-of-date armaments on the strength of dishonest advertisement, such firms offer to supply improved armaments, in this way inducing Governments to accumulate unnecessary stocks;

"(c) As a result of concerted action on the part of armaments firms, prices are unduly high, especially if, as is the case in Latvia, supplies are bought in small quantities."

The international character of any solution of the problem of private manufacture is further confirmed by the fact that the present Conference is proceeding to a limitation and reduction of existing armaments. As soon as States cease to be completely free to develop their existing armaments at their own discretion the question of how the armaments limited by the Convention are to be renewed can no longer be regarded as a purely domestic matter. As armaments can only be renewed by home production or by imports, the two questions of private and State manufacture and traffic in arms take on an international character and must be dealt with within the framework of a single Convention on the same footing and in the same fashion as the problem of the limitation and reduction of armaments.

2. The abolition of the system of private manufacture would not necessarily entail the closing down of all private factories as has been suggested. In so far as their production corresponded to the requirements of the States as limited by the Disarmament Convention, such factories might remain in operation. What would be changed is the system of ownership, which would cease to be private. If repercussions upon the organisation of national industry are inevitable, they would be the result not of the abolition of private manufacture but of the reduction of armaments.

3. The fear of the non-producing States that the abolition of the private manufacture of arms would be detrimental to their interests is unjustified, as even in the present state of affairs arms are only consigned by a private factory with the assent of the Government on whose territory that factory is situated.

At the present time the control over all exports of arms and munitions from their territory exercised by producing States in the sole interests of their national policy leads to the result that the non-producing States derive no benefits from the system of private manufacture. The abolition of this system would not, therefore, modify the situation of non-producing States in any respect.

There is already a tendency among non-producing States to create arms factories on their own territory with a view to making themselves independent of foreign countries in respect of the organisation of their national defence. This policy has nothing to do with the problem of the abolition of private manufacture, as from the point of view of a non-producing State, it is immaterial whether it is dependent in time of peace upon supplies obtained from the factories of a foreign State or upon supplies from factories which, though private, are in practice under the control of a foreign State.

4. Under The Hague Convention, belligerent States are only entitled to obtain new stocks from neutral private manufacturers and are prevented from procuring them from neutral State enterprises. From that it has been inferred that the abolition of private manufacture would prevent non-producing States from obtaining fresh supplies in time of war.

The problem of neutrality cannot, however, be considered solely in the light of The Hague Conventions irrespective of the other international agreements, more especially the Covenant of the League and the Pact of Paris, which have profoundly altered the legal and moral aspects of this problem. Can States bound by the Covenant of the League or the Pact of Paris use their neutrality as a pretext for treating a State which has resorted to war contrary to the afore-mentioned instruments and a State victim of an aggression on a footing of equality?

The abolition of private manufacture would make it possible to avoid cases in which Governments, while co-operating with international organisations for the pacific settlement of a dispute, would be exposed, in the absence of international regulation, to pressure from some of their nationals engaged in the private manufacture of arms. By claiming the right to sell arms and munitions to one and, sometimes to both, of the parties to the dispute on the ground that their foreign competitors will do so if they refrain, such private manufacturers would help to defeat international efforts for the pacific settlement of the dispute.

The contradiction would be even more striking if for the same private reasons the nationals of States bound by the Covenant of the League or the Pact of Paris were, in contravention of these instruments, to furnish arms and munitions to a State resorting to force in violation of international law.

5. The fear expressed in certain quarters that non-producing States would constitute considerable stocks of arms with a view to making themselves independent of foreign imports in case of war would appear to be exaggerated. Whatever the extent of the limitation of material under the terms of the Convention, no State—not excluding non-producing States—will be able to constitute stocks in excess of the direct or indirect limits fixed in respect of each of them under the Convention.

6. It has been noted on occasion that in certain countries it would be more difficult for Governments to reduce their arms factories on the cessation of hostilities than for private factories, owing to the pressure brought to bear in Parliament by representatives of workers employed in the manufacture of armaments.

It is not for the Disarmament Conference to concern itself with what may happen on the cessation of hostilities, that is, after a war is over. Its purpose is rather to prevent any outbreak of war.

Moreover, so far as is known, it is not the representatives of the workers who, in their respective countries, bring pressure to bear on the public authorities with a view to preventing the abolition or reduction of arms manufacture.

7. The abolition of private manufacture and the concentration of the manufacture of arms in the hands of the State would establish a more clearly defined distinction between war production and peace production; this is highly desirable since in view of the fact that many industrial undertakings manufacture both arms and other products, there is a risk of the clandestine manufacture of war material in spite of the existence of strict international supervision.

Furthermore, a clear distinction between peacetime and war-time production would render much more difficult the peace-time adaptation of private factories working mainly for pacific requirements to military use in case of war. The potential of industrial countries, without being abolished, might, however, not be utilised for war until after a certain process of adaptation, which would begin only after the opening of hostilities. The private manufacture of arms, by reason of its mixed character, enables industrial States to prepare well in advance in peace time for the immediate utilisation of factories for military purposes.

8. It was observed that it would be difficult to define war industries; that difficulty, however, is not peculiar to the problem of the abolition of private manufacture, but recurs also in connection with the regulation of such manufacture. The difficulty is less serious in reality than in appearance, since the point is not to suppress the private manufacture of all products capable of being used for purposes of war (e.g., chemical products), but only those which are obviously designed for military purposes (e.g., rifles, machine guns, guns), the sale of which has often produced "evil effects." This distinction might be exactly defined as a result of a study which has not yet been undertaken by the Committee.

9. The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms. The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destines it exclusively for military use.

10. The abolition of private manufacture and the substitution of some other system may, no doubt, involve financial burdens for the producing States. But certain countries, it should be noted, are at present re-organising their affairs in the opposite direction, i.e., they are attempting to reduce their State production by encouraging the development of the private war industry. This transformation, which is proceeding with the assistance of direct or indirect subsidies to private manufacturers, undoubtedly involves expenditure no less considerable than would be involved by the substitution of another system for private manufacture. Further, any expenditure arising out of the abolition of private manufacture could be distributed over a period of several years without constituting any very considerable burden on the annual budgets of the States.

11. The national laws now in force are not such as to prevent the evil effects of an international character which are brought about by private manufacture. These laws aim at ensuring the internal security of the State and take into account only the internal repercussions of private manufacture. They do not place at the disposal of Governments, exempt from any international undertaking in the matter, the means necessary to prevent the evil international effects of private manufacture.

12. The interests of private manufacture encourage differentiation and an increase in the power of the weapons produced, a state of affairs which is not in keeping with the spirit of the Disarmament Convention; the aims should be rather to encourage the standardisation of armaments with a view to making them more readily comparable.

13. To sum up, since the "evil effects" on armaments and on peace cannot be done away with by the solutions proposed by those who are in favour of the maintenance of private manufacture (publicity of licences for manufacture and export), the abolition of private manufacture must be envisaged irrespective of any social or political preoccupations, simply to meet the requirements of the Convention for the Reduction and Limitation of Armaments.

ANNEX C

EXTRACT FROM THE INTER-ALLIED NOTE SENT TO GERMANY, AS REPORTED IN "LE TEMPS," JUNE 7, 1925.

"Partie III.

Liste détaillée des redressements nécessaires pour que les clauses militaires du traité de Versailles puissent être considérées comme remplies d'une manière satisfaisante.

II. Usines, Dépôts, Ateliers (Articles 168 et 169).

Usines privées autre que les usines autorisées.

Situation actuelle.

Deutsche Waffen et Munitions Fabrik à Carlsruhe, cartoucherie, 526 machines restent à disperser.

Mausser, à Oberndorf, 885 machines restent à disperser.

Deutsche Waffen et Munitions Fabrik à Wittenau, 1,363 machines restent à disperser (y compris 197 qui ont été changées d'ateliers).

Bayerische Sprengstoff A.G. à Thansau, 4 appareils de nitration non utilisés et une installation de cristallisations sont à démonter et à vendre.

Sachsische Gusstahl-Fabrik, à Dehlen Deuben (Saxe), 3 jeux de presses doubles ont été réinstallés et 2 presses horizontales ont été acquises, malgré l'interdiction formulée.

Pulverfabrik Walsroden, à Demitz, 11 bâtiments étuves à vide restent à détruire.

Usines autorisées.

... Krupp à Essen et Hoppen sont encore à détruire . . . un stock de munitions . . . atelier de Nehr kros de Desching (autorisée) 17 magasins à munitions sont à détruire . . ."

ANNEX D

GERMAN LAW ON WAR MATERIAL (OF 27TH JULY, 1927).

The Reichstag has passed the following Law, which is hereby promulgated with the approval of the Federal Council:—

Section 1.

The import and export of war material of every kind (weapons, ammunition and other material) and its manufacture for export is forbidden.

Section 2.

War material must neither be manufactured, stored nor sold for home use.

Section 3.

The stipulations of Sections 1 and 2, in so far as Section 7 does not otherwise provide, apply to the following articles:—

1. Guns and "Minenwerfer" of every type, their travelling carriages, gun carriages and other special accessories.

2. Projectiles and ammunition for weapons mentioned in 1.

3.—(a) Mechanised weapons (Maschinenwaffen) of every type and all calibres and their gun carriages.

(b) Means of transport and special accessories for these weapons.

4. Rifles, short rifles and carbines of all patterns which:

(a) enter or may in future enter into the armament of the armed forces of any State, or

(b) are adapted for the use of ammunition employed by the German armed forces, or

(c) no longer enter into the armament of the armed forces of any State, but are nevertheless capable of military use or are intended for war purposes.

5. Projectiles and ammunition for the weapons mentioned in 3a and 4.

6. Pistols and revolvers, automatic or with automatic loading contrivances, with barrel length exceeding 9.8 cm. or calibre exceeding 8 mm.

7. Contrivances and machines—intended for war purposes—for firing or ejecting bombs, torpedoes, depth charges and other types of projectile.

8. Hand and rifle grenades and trench mortar bombs.

9.—(a) Land mines.

(b) Bombs intended for war purposes.

10. Torpedo tubes and mechanical devices belonging to torpedo-ejecting mechanisms.

11.—(a) Torpedo ejection charges.

(b) Torpedoes and their special accessories.

12. Depth charges, towed bursting charges, floating mines and moorable submarine mines.

13. Ammunition boxes and packing cases specially adapted for the transport and storage of war material.

14. Submarines, their periscopes and other special equipment.

15. Mountings and mechanical devices for naval guns.

16. Ammunition supply and loading contrivances for naval guns.

17. Mechanical and electrical firing devices for naval guns and torpedoes.

18. Contrivances for controlling the discharge of torpedoes.

19. Fixed or mobile under water protective netting.

20. Armour plates, cupolas and protective shields.

21. Tanks and armoured motor vehicles.

22.—(a) Lances and adjustable bayonets.

(b) Swords intended for war purposes.

23.—(a) Ships of every type and tonnage obviously built or equipped for use as warships or submarine vessels of any kind. Mercantile surface vessels of every type and speed are not included in this category provided they are not equipped in time of peace with special installations which obviously facilitate the use of weapons (guns, mines, aeroplanes, etc.). The reinforcement of decks is permitted in time of peace, but only in the case of mercantile vessels which are built, rebuilt or refitted in Germany on foreign order or account and are intended for export as soon as completed.

(b) Boilers and main engines of all designs, which obviously are specially adapted for use in warships or submarines of any type; specially adapted auxiliary machinery obviously intended for use with such boilers and main engines.

24. Contrivances for projecting or emitting gas or smoke, intended for war purposes; and flame-throwers.

25.—(a) Contrivances for direction and control of fire.

(b) Aiming and sighting devices and range finders intended for war purposes.

26.—(a) Optical instruments and apparatus for ranging by sound or by flash, intended for war purposes.

(b) Searchlights intended for war purposes.

27. Transmitting and receiving installations and contrivances intended for war purposes, also all other apparatus intended for the same purpose, by means of which messages can be transmitted, received or intercepted, or military and naval units controlled.

28. Smoke balls, signal rockets, light rockets, and signal throwers, intended for war purposes.

29. Articles intended for war purposes, which form part of individual or collective military equipment, including steel helmets and gas masks.

30. Entrenching tools specially adapted for war purposes.

31. Barbed wire, including supports and other protective equipment, specially adapted for war purposes.

32. Automobiles and trailers or side cars specially adapted for war purposes.

33. Horse-drawn vehicles specially adapted for war purposes.

34. Observation wagons and observation ladders intended for war purposes.

35. Special devices for bridging columns and their pontoons, intended for war purposes.

36. Field kitchens, motor or horse drawn, and their special equipment, intended for war purposes.

37. Railway rolling stock, specially adapted for war purposes, special accessories therefor and special contrivances for the conversion of ordinary rolling stock for war purposes.

38. All devices employed in the training of men in any matter concerning: artillery, the use of torpedoes and depth charges, the laying of submarine mines, the control of artillery fire and torpedo fire, and methods of attack, as well as the use of range-finders, searchlights, wireless installations and installations for submarine signalling, intended for war purposes.

39. Principal parts of:

(a) the articles mentioned in Nos. 1 to 10, 12, 13, 17 to 20 and 22a and of the gas masks mentioned in No. 29.

(b) the articles mentioned in Nos. 11, 14 to 16, 21, 23b, 25a, 32 and 33 and such articles mentioned in Nos. 25b and 26a as are specially adapted for war purposes, in so far as these principal parts cannot normally be used in the same form for industrial purposes.

40.—(a) Partly finished principal parts, in conformity with No. 39, of the articles mentioned in Nos. 1 to 3, 7 to 12, 15, 16, 20 and 21, if they are obviously intended for the manufacture of weapons, ammunition and war material, or have reached such a stage of manufacture that they can normally be further used for war purposes alone.

(b) Partly finished principal parts of the articles mentioned in No. 4, if they have reached such a stage of manufacture that they can normally be further used for war purposes alone, and of the articles mentioned in No. 5, if they have undergone more than one cold drawing.

41. Asphyxiating, toxic or similar products intended for war purposes; contrivances specially intended for their manufacture, storage or use.

42. Nitro cellulose and nitroglycerine powders:—

(a) Powder for artillery of every kind;

(b) Powder for small arms if obviously intended for war purposes.

43. The following explosives which may form part of any weapon of war:—

(a) Nitro-compounds with three or more nitro or nitric acid ester groups attached to one nucleus, except picric acid and trinitrotoluol.

(b) Compressed or molten picric acid.

(c) Picric acid in powder form intended for war purposes.

(d) Trinitrotoluol, recrystallised or having a melting point over 79 degrees, or in the form of compressed or cast charges.

(e) Trinitrotoluol in powder form intended for war purposes.

(f) Mixtures of ammonium nitrate and nitro-derivatives with more than 25 per cent. nitro-derivatives.

(g) Fusible mixtures of nitro-derivatives and chlorates or perchlorates with more than 35 per cent. nitro-derivatives.

44. Compressed nitro-cellulose in charges for war purposes; nitro-cellulose obviously intended for war purposes; raw materials (Rohmasse) (compositions of nitro-glycerine and nitro-cellulose) intended for war purposes.

45. Detonators and means of ignition, if obviously intended for weapons of war.

Section 4.

The following products are also subject to the stipulations of Section 2:—

1. Small arms intended for war purposes, if not already included under Section 3, No. 4.

2. Ammunition for weapons mentioned in Section 3, No. 6.

3. Boilers and main engines of all designs, which are obviously intended for warships or submarines of any type, and auxiliary machinery obviously intended for such boilers and main engines and their principal parts, if not already included under Section 3, Nos. 23b or 39b.

4. Horse drawn vehicles and their principal parts, intended for war purposes, if not already included under Section 3, Nos. 33 or 39b.

5. Principal parts and semi-manufactured parts, intended for war purposes, of the articles enumerated in Section 3, Nos. 1 to 38, if not already included in Section 3, Nos. 39 and 40.

6. Uniforms intended for war purposes.

7. Harness for draught, saddle, or pack animals, intended for war purposes, and principal parts thereof.

8.—(a) Special war machines; tools, gauges, moulds, models, matrices (sections), stamps, top and bottom swages, specially adapted for the production of war material.

(b) Groups of machinery with connecting mechanism appertaining thereto, specially assembled for the production of war material.

Section 5.

1. The import of the articles enumerated in Section 4 is forbidden.

2. For export, these articles may only be manufactured and stored in the quantities customarily required by trade for the conduct of a regular export business.

3. The articles enumerated in Section 4, Nos. 3, 7 and 8, may only be manufactured for export for the purpose of executing genuine orders.

4. Factories which obtain orders for the export of articles designated in Section 4, No. 8—as well as all other factories—are forbidden to carry out research concerning the production of war material, or to maintain special equipment for such research. Factories which receive such orders for export may, however, carry on the research necessary for the execution of these orders, in so far as this research does not relate to the manufacture of war material forbidden to the German armed forces by the Treaty of Versailles.

Section 6.

1. The stipulations of Section 2 and of Section 5, para. 4, are not applicable to orders given by German official departments.

2. The Federal Minister for Commerce, in collaboration with the Federal Minister for Defence, has the right to limit in the authorised factories the plant for producing the articles mentioned in Section 3, Nos. 1, 2, 3a, 4a, 5, 6, 8, 11a, 15, 16, 20, 33, 42 and 43a to e.

Section 7.

Recrystallised trinitrotoluol, hexanitro-diphenylamine, tetryl and trinitroresorcin may be manufactured for the production of detonators for industrial purposes and exported in quantities fixed yearly by the Federal Minister for Commerce.

Section 8.

Nitrocellulose and nitroglycerine powders, nitro-compounds with three or more nitro or nitric acid ester groups attached to one nucleus and phosphene may only be manufactured in factories which have been granted permission to that effect by the Federal Minister for Commerce. Permission may be granted on condition that only a fixed quantity of apparatus shall be used for manufacture. Permission may be cancelled if the stipulated conditions are not fulfilled, or if the manufacture of the products in question is discontinued for a period of over six months.

Section 9.

1. Any person contravening the provisions of this Law shall be punished by imprisonment not exceeding six months or by detention (Haft) or fine.

2. In addition to the penalty, it may be ordained that the articles, to which the punishable action relates, shall be confiscated and rendered unserviceable, even if they are not the property of either the offender or an accomplice.

3. Confiscation and rendering unserviceable must be ordained if the following are in question:—

(1) Articles mentioned in Section 3, Nos. 1 to 22a, 23 to 25a, 28, 32, 33, 42a, 43b, d, f, g and Section 4, No. 8a.

(2) Articles mentioned in Section 3, Nos. 25b and 26, if specially adapted for war purposes.

(3) Principal parts mentioned in Section 3, No. 39.

(4) Partly finished principal parts, in conformity with Section 3, No. 39, of the articles mentioned in Section 3, Nos. 1 to 5, 7 to 12, 15, 16, 20 and 21, if they have reached such a stage of manufacture that they can normally be further used for war purposes alone.

4. Groups of machinery specially assembled for the production of war material must be dispersed and the connecting mechanism confiscated and rendered unserviceable.

Section 10.

For the period of six months after this Law comes into force its stipulations are not applicable to contracts relating to the export of articles whose export was not prohibited by the Law of 26th June, 1921, relating to the Import and Export of War Material. This holds good, however, only in respect of contracts, concluded before the date of promulgation of this Law, the execution of which had already been begun before that date.

Section 11.

The Federal Minister for Commerce may decide that the stipulations of Section 1 shall not be applied to ships of the type designated in Section 3, No. 23a, if their construction was begun at a German shipyard in virtue of a foreign order before 1st August, 1914.

Section 12.

Upon the entry into force of the present Law, the Law of 26th June, 1921, amending the Law of 22nd December, 1920, relating to the Import and Export

of War Material (Reichsgesetzblatt, p. 767) is abrogated.

Section 13.

The present Law comes into force the day following its promulgation.*

Berlin, 27th July, 1927.

The Federal President,

(Sgd.) VON HINDENBURG.

(For the Federal Minister for Foreign Affairs),

The Reichs Minister for Justice,

(Sgd.) HERGT.

(For the Federal Minister for Economic Affairs),

The Federal Minister for Defence,

(Sgd.) GESSLER.

* i.e. as from 6th August, 1927.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

11

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

ELEVENTH DAY

THURSDAY, 31ST OCTOBER, 1935

WITNESS—

Admiral Sir REGINALD BACON, K.C.B., K.C.V.O., D.S.O.

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (a) by the United Kingdom alone, (b) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade,

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

ELEVENTH DAY

Thursday, 31st October, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Admiral Sir REGINALD BACON, K.C.B., K.C.V.O., D.S.O., called and examined.

1494. *Chairman*: Sir Reginald, you have prepared a Note of what you desire to say to us. Would it be convenient that you should read this or would you prefer to make a statement?

Sir Reginald Bacon: I think, Sir, if you ask me questions on what I have written, that would perhaps be the better course.

1495. *Chairman*: The only thing is this: The Press want to be informed of what your evidence is, and therefore, unless you see any reason to the contrary—it is quite short—it would be convenient if you read that first.

Sir Reginald Bacon: Certainly.

1496. *Chairman*: And then we may ask questions. I generally let the Press have the record of the witness. I have yours here. You will not mind my reading it?

Sir Reginald Bacon: Certainly not.

1497. *Chairman*: "Admiral Sir Reginald Hugh Spencer Bacon, K.C.B., K.C.V.O., D.S.O.: Director of Naval Ordnance and Torpedoes, 1907-8; retired November, 1909, to take post of Managing Director of the Coventry Ordnance Works, 1910-15; resigned the appointment and gazetted Colonel 2nd Commandant R.M.A., 1915; commanded Heavy Howitzer Brigade R.M.A. with Expeditionary Force in France; commanded the Dover Patrols, 1915-18; Controller Munitions Inventions, January, 1918-April, 1919." Have you a copy of your Note?

Sir Reginald Bacon: I have, Sir. Shall I read it?

1498. *Chairman*: Yes. You have not prepared any separate statement, have you?

Sir Reginald Bacon: I have prepared a separate statement after I saw the evidence of Dr. Addison.

1499. *Chairman*: Would you be prepared to read that—or perhaps both?

Sir Reginald Bacon: It will not take very long. I will run through it.

With regard to the shortage of ammunition at the commencement of the Great War, this was in no way due to difficulty of manufacture and supply. When quick-firing guns were first introduced into the Army and Navy objections were raised, and it was pointed out that in the Navy the limited space available for stowage would prevent enough ammunition being stowed to take advantage of the increased rapidity of fire. In the Army the objection raised was that the horse transport could never keep the guns supplied. The same answer was given in each case, namely, that occasionally a burst of firing was highly desirable, and it was for this reason that quick-firing guns were introduced, it being recognised that ammunition supply would limit the time during which the quick-firing property of the guns would be

available. No attempt was, therefore, made to increase the manufacturing capacity of quick-firing ammunition. It was never anticipated before the War that you would ever have to supply quick-firing ammunition in quantities that would keep up a constant fire. In the Army at the outbreak of the War there was, I believe, only one single motor transport vehicle—that was an ambulance supplied privately to Sir John French—but within a couple of months motor transport came along and the rate of ammunition supply became largely increased, and the original anticipated difficulty of supply was entirely done away with. Hence a shortage of ammunition. After this, trench warfare upset all calculations regarding the amount of ammunition required by an army. Lord Kitchener one day told me—that was in the latter part of 1914—that he had just seen the Quarter-Master General of the French Army, who informed him that, at the Battle of the Marne—which had just been fought—the French had fired away one-half of the total outfit and reserve of their ammunition—a condition that had never been even dimly considered possible. That, I think, has a very great bearing on the statement that has been quoted so often—that the armament firms at the beginning of the War were unable to supply ammunition in sufficient quantities. They could have done so had the necessity been foreseen; there was absolutely no difficulty in supplying a very considerable amount more than had been supplied. Moreover, the reserves that were kept by the Army were limited to what they considered would be the necessities during the beginning of the War.

As regards high-explosive shell: In addition to ammunition shortage generally a special demand for high-explosive shell for field artillery arose early in 1915. Sir John French showed me, about Christmas, 1914, when I was visiting him at St. Omer, a photo he had just received from the French General Staff which showed a barbed-wire entanglement cut by high-explosive shell. The experience of the Boer War decided the ratio of high-explosive shell and shrapnel supplied to the artillery. High explosive had been found to be more or less useless against kopjes, so the supply was fixed at 25 per cent. high explosive and 75 per cent. shrapnel. But as soon as the French brought out their fuse, which burst high explosive a few inches above, instead of under, the ground, and could therefore cut wire entanglements, immediately the cry came for more high explosive, and this type rose at once to be greatly in value over shrapnel. As all manufacture had been based on the 25 per cent. basis there naturally was a shortage. The trade could easily have supplied 100 per cent. high-explosive shell had it been required to do so before the War.

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As regards the general position of pre-war armament manufacture, so far as the Navy was concerned, we had Vickers, Armstrong and Coventry Ordnance, in the trade, and Woolwich manufacturing for the government. Theoretically, Woolwich was supposed to check trade prices, but in practice they could do nothing of the sort, and this for two reasons (1) Woolwich was badly situated for cheap manufacture. They were a sheltered concern and the incentives to cheapen costs were absent. (2) Their overhead expenses—which included depreciation of reserve buildings and machines—made all their manufacturing costs far too high.

As regards those pre-war manufacturing firms, Vickers and Armstrong were able to supply a man-of-war complete to any country that wanted it. The three firms of Cammell Laird, John Brown and Fairfield were not in that position. If they tendered for a man-of-war they had to obtain their armaments from either Vickers or Armstrong, who were their rivals. They therefore started the Coventry Ordnance Works, so as to be able to supply all the armaments required in the Navy for any particular ship and so enable the three firms, Cammell Laird, John Brown and Fairfield, to tender for a battleship complete. That was the sole reason why the Coventry Ordnance Works were started.

While I am on that point I may say that naturally we had to rely very largely on Government orders to keep the concern going, and during the first four years when I was there we incurred a debt of about £600,000. Then we went to Mr. Churchill, who was the First Lord of the Admiralty, and said, "Here we are. Do you want us or do you not? We cannot go on losing money, and unless you give us a reasonable share of the Government orders every year we shall have to close down." The Director of Naval Ordnance and the Controller were rather against us, they did not want the bother of a third firm, but Mr. Churchill—who on all these occasions shows a very statesmanlike spirit—said he could not afford to lose one of the armament firms in the then condition of Europe, and so he gave us sufficient orders to keep us going. In 1913, when our foreign orders—we happened by that time to have got our nose into them—and with the added support we received, we were able to keep the Coventry Works going. 1500. *Chairman*: You are speaking of the Coventry Ordnance Works?

Sir Reginald Bacon: The Coventry Ordnance Works, entirely. Woolwich, speaking as a pre-war Director of Naval Ordnance, was a nuisance to the Admiralty. We were obliged to order a large percentage of our armaments from Woolwich at prices considerably above those at which the trade could supply, and this was a very serious matter when every penny of the Navy vote was urgently required. Woolwich had no work other than armaments to fall back on, and this prevented the establishment being properly balanced.

I may say that the reason why, when I was Director of Naval Ordnance, I was so keen—and so was my predecessor, Lord Jellicoe—on keeping the Coventry Ordnance Works going was that we had an agreement with them that they would not enter into any combination with either Vickers or Armstrong, and therefore we relied on them to check prices. Woolwich was absolutely useless to check prices. We had the Coventry Ordnance Works in this agreement to keep away from the other two firms, and so we were able to get a check on the prices that the other two firms were charging for our ordnance. Vickers and Armstrong were general manufacturers of steel, shipbuilding, etc. I may say that originally all these firms took up armament manufacture to a large extent as an outlet for their steel, because the armaments themselves took a certain amount of steel and the foreign orders for battleships, cruisers, and so on, also took a good deal of surplus steel. That is why they took up armament manufacture. To them government armament orders were of the nature of a flywheel, which gave an output absorbing of a portion of their steel and kept a steady

flow of one special sort of work. I cannot emphasise too much the value to our big firms—Vickers, Armstrong, the shipbuilding firms—of having at that time a more or less standing order annually from the government, within limits. That did act as a flywheel to their establishment. Trade requirements might fluctuate considerably, but they always had a pretty nearly certain quantity of orders for armaments coming in from the government.

But idle machines usually employed for armament manufacture could also be used for commercial work. Coventry was, in fact, rather like Woolwich, except that it had no annual assured share of government orders. That was before 1913; after that we were given an assurance by the Admiralty. It is an axiom of manufacturing finance that, speaking generally, the more work a firm gets the cheaper it should be able to manufacture. The reason is that the greater the output the more can the overhead expenses be spread and therefore the less each job has to carry. The overhead expenses of a firm may be very heavy—especially is this the case with an armament firm—so that volume of work is required in order to turn out the cheapest product. I have to say, speaking generally—because of course, as every manufacturer knows, you arrive at a certain peak of manufacture when you have to put up new shops and new machines. The cost of these causes a check. So for a time this argument does not apply—but, speaking generally, an increase in orders reduces the costs of production.

Woolwich or whatever factory the government might construct cannot well compete with foreign firms for the supply of armaments to other countries. I think that is something with which everybody must agree. You cannot have the British Government going round supplying armaments to other countries. It would cause such a row that, under present conditions and with the prevalent ideas about peace, it would be too much for any government. Hence, if manufacture is confined to a government arsenal the net outcome will be a loss of trade to this country. I would like here to quote figures with regard to the annual amount of armaments supplied to foreign countries. They averaged between £2,000,000 and £3,000,000. These sums would be entirely lost to the country. A rough calculation will show that the amount in wages lost out of a £3,000,000 order would be £1,200,000. £600,000 would go to overhead charges. About 50 per cent. of the labour cost as a rule went to overhead charges. That left £1,200,000 for material. Speaking roughly, the material and labour costs were about equal. That meant that wages for about 10,000 men would be lost annually, and if we take into account that nearly all the material cost boils down in the end to labour charges, then wages for nearly 20,000 men would be lost. That is working it out roughly. As everybody who has any knowledge of finance knows, that money would probably be spent in this country six times over in the course of the year. It would circulate to different trades.

1501. *Sir Thomas Allen*: I would like to get these figures a little clearer. You speak of £3,000,000?

Sir Reginald Bacon: Yes. £3,000,000.

1502. *Sir Thomas Allen*: The figures that you have given us are £600,000 for overhead charges and £1,200,000 for wages and material.

Sir Reginald Bacon: Yes.

1503. *Sir Thomas Allen*: What becomes of the rest of the £3,000,000?

Sir Reginald Bacon: It is £1,200,000 for labour and £1,200,000 for material.

1504. *Sir Thomas Allen*: Thank you.

Sir Reginald Bacon: We used that as a rough calculation. Thinking over things, that is what you generally used to allow. Now, that is a very serious item suddenly to give up in peace time. Before the War our chief rivals in armament supply were Germany first, then France and America, and anything we did not supply was immediately made by

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Germany. There was not the slightest question if we did not supply a thing that it would not be supplied at all, because if we did not do it, it would immediately go into foreign hands. I shall have a word to say about that later. Constriction of armament supply on our part will merely divert manufacture to other countries, or cause other countries to start armament factories. It will not reduce the demand for armaments.

Another great disadvantage of concentrating manufacture in a single supply factory is that there will be no competition. Absence of competition must inevitably lead to excessive price of manufactured articles, since the incentive to saving cost will be absent, and shop processes will not be submitted to the same rigorous examination as now exists in order to introduce the most economical methods of manufacture. I might say there that when Woolwich was asked to manufacture they always refused to tender. They said, "It is no good our tendering because you have got to pay us what it costs us to manufacture." If you pressed them and said, "For Heaven's sake give us an approximate figure," they would give you an approximate figure, but they said it might or might not be adhered to. They had the whole of the finance of the government behind them. It did not matter twopence to them what a thing cost. There was no incentive to economy at all, speaking broadly; they made a thing, they sent on the bill to the Admiralty and the Admiralty had to pay. You will always get that in a government concern that has not got to show a balance sheet. I was quite convinced—and our prices proved it at the time—that it was cheaper for the private firms to pay a dividend than it was for Woolwich to manufacture, because they had no financial responsibility. There is one other thing I must say, in defence of Woolwich, that their reserve plant ran up their overhead charges excessively.

In no way will the disadvantage of a single factory be more felt than in design. I view with much regret the absorption of the old firm of Armstrong by Messrs. Vickers. This, coupled with the absence of the Coventry Ordnance, must inevitably strike a bad blow at competitive design, and the efficiency of the armaments in future adopted must suffer. If the demise of Vickers is added to this state of things, the result will be catastrophic.

Now, I want particularly to call your attention to this, because it is so true and it is a point that is so little appreciated by people who talk generally on the whole subject. As Director of Naval Ordnance, I always had a haunting dread that when war broke out we might find that our enemies had something up their sleeves better than what we had, and that we should find ourselves at a disadvantage. My only solace was the fact that we had as our independent designers three armament firms and Woolwich, all anxious to have their particular designs adopted. Destroy this, and then if war does occur we may have a very rude awakening. The efficiency of our design of armaments is of incalculable importance—I say that advisedly—and overshadowed, in my mind, every other consideration. Up to the day that war is declared, you never know what the other side have up their sleeves and your only security is to have strong designing departments in competition and—another point I was coming to—your armament firms having relations with other firms, not necessarily armament firms, in Europe, from which they can gather information regarding other countries. I do not refer to spying or anything of that sort, but having relations by which they can gather a lot of information.

You may remember a statement that was made a short time ago about Mr. Mulliner. Mr. Mulliner was a very sharp, clever man, who was managing director of the Coventry Ordnance Works. He happened to go abroad on a business visit and he came back and told me, among other things—

1505. *Chairman*: Just one moment. At that time, were you at Coventry?

Sir Reginald Bacon: No. I was the Director of Naval Ordnance. He was at Coventry. It was at the beginning of 1909. He came back and told me that Krupp had got orders for—I think I am right in saying—four circular planes, particular machines with very big base dimensions. The only use of that machine was for turret manufacture for men-of-war, for planing up the roller paths. What was the inference? That Germany was preparing to manufacture armaments on a very large scale. The other thing I heard was from the late Sir Trevor Dawson—that Krupp was a member of the Nickel Syndicate in Europe and all the members of the Nickel Syndicate were supposed to place their orders for nickel through the Syndicate. Instead of that they heard, and found out, that Krupp had placed a very large order for nickel outside. The only inference to be drawn from that, as nickel was then almost entirely used either for gun or armament manufacture, was that Krupp was laying up secretly a large supply of nickel.

1506. *Sir Philip Gibbs*: Do you happen to know where the nickel came from?

Sir Reginald Bacon: No. I know nothing about that, I am sorry to say.

1507. *Sir Philip Gibbs*: Do you know what country it came from?

Sir Reginald Bacon: I know nothing about it. I am only telling you what Sir Trevor Dawson told me. Naturally, I passed on the information to the First Lord of the Admiralty and the information proved correct. Our inference, which was perfectly correct, was this. It took 18 months at least to make a complete set of turret mountings for a man-of-war. You can build a ship in a year. The original Dreadnought was built ready for sea in that time, but the only reason why it was ready was because we took the turret mountings of two other ships that had been laid down the year before and put them into the Dreadnought. What Germany did was to make mountings in advance of laying down the ships, so that when the moment came to build more ships she had the turret mountings. That is why Krupp was expanding so much in the direction of this special machinery for the manufacture of turrets. I may remark that it was on that information—and other information, of course, that was coming in—that the Government laid down the eight ships in 1909. You may remember there was a tremendous fight and it was entirely through Mr. McKenna and Lord Fisher that the matter was carried through the Cabinet. In fact, Mr. McKenna was out of the Cabinet for 24 hours because of the opposition he met with to this programme. Those eight ships probably saved the country because, in January, 1915, we had only 18 Dreadnoughts fit to fight, compared with the German 16.

1508. *Mr. Spender*: In 1914?

Sir Reginald Bacon: January, 1915. Five months after war was declared we only had a superiority of two Dreadnoughts over the Germans and they had a superiority of six pre-war Dreadnoughts over us. It was running things extremely fine. On paper we had more Dreadnoughts but they had had a collision which laid up two Dreadnoughts and the *Audacious* had been sunk, which rid us of another, and two had been so short a time in commission that they were not in a fit condition to fight. If it had not been for Mr. McKenna and Lord Fisher insisting on those eight ships at that time, in January, 1915, if the Germans had come against us we might very likely have lost command of the sea and lost the War. It was to a certain extent—I will not say entirely—due to information that we were able to obtain about what was happening in Europe through members of private armament firms that caused us to have the right Dreadnought programme. Another point is that a commercial firm has far better opportunity to discover what foreign firms and governments are doing in the way of design and manufacture than any government can have.

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I have the actual figures here. We had 18 efficient Dreadnoughts fit to fight to Germany's 16. We had eight pre-war Dreadnoughts to Germany's 16, we had four battle cruisers to Germany's three, we had 12 light cruisers to Germany's 14, and we had 42 destroyers to Germany's 88, so if you take the figures right through, from start to finish, you will see we were at considerable disadvantage in the Grand Fleet as compared with the High Seas Fleet.

Another point is that a government cannot pay adequate salaries to the best men. To do so would create a demand throughout all departments for pro rata salaries. Hence the government factory will never be able to procure the best brains. That, of course, is obvious. The moment you increase the salary of the superintendent at Woolwich, all the dockyard superintendents want an increase, and the Treasury will not stand that. In a private firm, if you find a really good man you can pay him a good salary.

It is, of course, an utter fallacy to say that an armament firm wants war. It neither wants war, nor does it make any more money during a war than a dozen or more general trading concerns. Stability of exchanges and regular work are the desiderata of any manufacturing firm.

A small country that obtains its armaments from another country is bound to it by very strong ties. That is a point that is not often recognised. To a certain extent the fact that Krupp had supplied the armaments to Turkey made Turkey very anxious to enter the War on the side of Germany. When the question of rearming the Turkish Army came along the German Minister for foreign trade went to Constantinople and refused to leave until he had obtained the contract for his country. I happened to be in Constantinople soon after and found that our Embassy took no interest in our trade. It was not a thing that concerned the Embassy in the slightest. After Commercial Attachés were appointed they really began to help the country in obtaining orders for foreign contracts. Had the Turkish army been armed with English pattern rifles, guns and ammunition the question of on which side Turkey entered the War would probably have received a different solution.

There is another point that I think I ought to mention. I have seen it stated that British ammunition was used against our troops at Gallipoli. That is very likely. Why should it not be? I think at that particular moment the German ammunition was probably a little better than ours, but the main point is that if they had not used English ammunition they would have used German, which would have been to the disadvantage of our troops. The reason I say that the German ammunition was better than ours is that they had better fuses for their shells. They were the leading nation in fuse manufacture at that time. When the Seymour Relief Column in the Boxer Expedition captured the big arsenal outside Tientsin, they had run out of ammunition; and lo and behold, in the arsenal they had any amount of 303 ammunition and that saved the whole Expedition being cut up.

Six weeks before the Great War broke out I asked the War Office to give to the Coventry Ordnance a small order for 2,000 fuses so as to keep my staff and foremen in the fuse factory employed. The War Office refused. I had to discharge all except the manager. Within a day or two of the declaration of war the War Office asked me to turn out 20,000 fuses a week. Their previous refusal delayed the supply for several months longer than would have been the case had I received the order I asked for. I put that in because it is interesting. It shows an absolute want of any idea that we were going to war. You could not have any better evidence that we did not engineer the War, than the fact that the War Office refused to give an order for 2,000 fuses six weeks before the War and yet when the War broke out they wished to place an order for 20,000 a week with one single firm.

Perhaps it might interest the Commission to mention that, when war did break out, I went before the Committee of the Cabinet that was sitting on the supply of armaments. Lord Kitchener was the Chairman. I have never ceased since to marvel at the way Lord Kitchener tried to get my firm to supply more than we could. He was an extremely clever man but he had never been actually engaged with manufacture and he did not seem to appreciate that forecasting manufacture was a mathematical calculation. If you want to manufacture a gun which is going to be made in say 20 different parts, each part requires so many hours' machining on certain machines. If you are going to supply 10 guns, the time you require is that number of hours multiplied by ten. Lord Kitchener wanted me to supply a certain number of 4.5 howitzer equipment. It was a thing we had supplied before. Therefore, the order was given to us. I forget what the number was. It may have been 150. He said "You can do more than that. Surely you can do 200. As a matter of fact, we want 300. Can you not do more?" I said "No. I can only promise to do 150. I will try to give you more if I can, but I cannot promise. I have men in America buying machines and I have to put up new shops and when the machines are installed it will take a little time before I can start extra manufacture. If I can do it, I will, but I cannot promise to supply more." But he still continued to press me.

A great point has been made by Dr. Addison about the failure of firms to fulfil orders about June, 1915. I think that was very largely owing to the pressure that was put upon them to try and give an optimistic estimate. At the same time Lord Kitchener said to me "Vickers have promised so and so". I said "I really do not know what Vickers can do. All I know is what I can do." I added that the government would have to take over the whole of the manufacture of the country. Mr. Lloyd George immediately took up the point, with his usual alertness. He asked "Do you mean that the government will have to take over all the labour?" I said "They will have to do so; they cannot do it now because we have not the machines but the time will come when the government will have to take over the whole of the labour of the country and apportion it among the manufacturing firms." I have never ceased to wonder at the way Lord Kitchener tried to increase the number that we said we could supply.

Armaments are a check on war—a much greater check than the League of Nations. Of course, as you know, we have always been able to stop war at any time between the Crimean War and the Great War by the strength of the Navy. We did it on four or five different occasions and I think public opinion seems to be coming round to the same idea that it is a strong navy in the hands of a first-class power that can preserve peace. Our Navy stopped the Russo-Turkish War, that was in 1877.

1909. *Chairman:* A first class pacific power with pacific ideas, you mean?

Sir Reginald Bacon: You are quite right, Sir. That I claim England to be. At all events, we stopped the Russo-Turkish War by sending a fleet up the Dardanelles; that was in 1877. In 1897 there was the Fashoda business. We stopped that, and for a very peculiar reason. We were very strong then in the Mediterranean, but the French had devoted all the money that had been voted for their naval supplies to rearming their field artillery against Germany. The result was that at the moment they wanted their navy the Minister of Marine said "We really cannot go to war because we have not the naval strength." Then we had the Penjdeh incident. You may remember that. There we had every one of the Russian ships dogged by one of our ships and if war had broken out they would either have had to have hauled down their colours or be sunk. When the Italian-Abyssinian trouble arose one word from us to Italy would have shown that

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country the impossibility of sending an expeditionary force overseas in the face of the orders given to our fleet to prevent their transport. We only had to say to Italy before the Italian Government committed themselves: "If you send out transports we shall stop them." No country would dare to send troops overseas unless they had command of the seas.

1510. *Chairman*: Thank you, Sir Reginald. That is the end of the Note as supplied to us.

Sir Reginald Bacon: Yes, Sir.

1511. *Chairman*: You had prepared some further Notes.

Sir Reginald Bacon: I have prepared some further Notes. I had little knowledge when I prepared the original remarks of what your Commission was hearing or doing. I read Dr. Addison's evidence and I should like to put before you, Sir, a proposal which I think is much simpler and much less expensive and far more efficient than that which Dr. Addison from his great experience has advocated. That is this. I am absolutely and utterly opposed to a big government manufacturing concern. It is really a practical impossibility—at least from my knowledge of manufacture—for many many reasons which I could give you if you want them. What I think we ought to do is very simple. That is, to have a shadow Ministry of Munitions. When the War ended we had the most efficient—not manufacturing—but ordering department, in the shape of the Ministry of Munitions. Naturally, that was a thing that you could not keep going after the War because a good deal of the work done there was voluntary and also a good deal of the work was done by men taken from their ordinary peace-time employment; but I do not see why you should not have a shadow Ministry somewhat on these lines. The Prime Minister would write to certain people who were recommended to him asking them if, in the event of war, they were willing to serve as members of the Council of the Ministry of Munitions. There would be no salaries, no pay of any sort at the moment. They would probably consent. It would involve very little work then, and when war broke out they would be doing good work for the country. Each one of those men might have a sum allotted to him for an assistant whom he would select himself, who would do all the paper organisation of his department. I should think something in the nature of £1,000 a year would cover his salary and clerical expenses. I believe there are sub-committees working under the Committee of Imperial Defence who have been and are inquiring in detail into the manufacturing capacity of the country. Those assistants would get all the information that they could collect and with their shadow Ministry they would propose who should be the heads of the different departments, who would also be asked if they would be willing to serve in the event of war—of course with salaries in war time; they would have to be paid the same as in the Great War.

In that way, and from the experience of the Ministry of Munitions, which experience has all been left behind on paper, you could build up in shadow the whole of the Ministry of Munitions. You could go so far as to arrange the buildings. Each manager would arrange his clerical staff. The Admiralty and the War Office would arrange what portions of their contract departments could be split off and go to the Ministry. Of course, the Admiralty and the War Office must each keep a part of their own contract departments, but a portion could be split off. The Treasury could arrange for the financial side. Nearly all our trouble in finance, as regards manufacture, was owing to the fact that no provision had been made by the Treasury for increasing the financial staff in war. I am only sketching this very briefly. I think that a scheme of that sort could be very easily worked out and if, unfortunately, we did go to war, then within a week the whole of the Ministry of Munitions could be in place. Mind you, immediately on the outbreak of war, the War Office, the Admiralty and the Air Force would have to place

orders for three months for what munitions they considered necessary. That would be inherited by the Ministry of Munitions and they would supplement it as they thought necessary. One other point. Prices should remain stabilised until the Ministry had settled down at what they were one month before war was declared. That would prevent any rise of price on the outbreak of war and would be a very good basis to work upon.

Sir, if that meets at all with your approval, I would submit that when you examine me and ask me questions you should perhaps bear in mind the two schemes. First, there is this elaborate manufacturing concern which has to carry enormous reserves of machinery, which would be a very great expense to the country and for which you would have to put aside a large sum every year for depreciation. There are some special machines that might become obsolete, or at all events obsolescent, in a very short time. And, mind you, that arsenal would have to expand in the same way as the private manufacturing firms had to extend during the War. They would be handicapped by being centralised instead of being spread over the country and they would have to build additional shops. They would have to put in additional machinery. It would be exactly the same sort of thing that happened during the War if the war was of anything like the same magnitude as the Great War, which came as an absolute shock to everybody concerned. There was not a soul in England—the only man with any vision was Lord Kitchener—who had the foggiest idea of the quantity of ammunition and guns that would be required. I was told at the Admiralty in 1914 that the War would not last six months. Nobody had any idea that it would be such a long war. It was not until trench warfare came along that the country woke up to the fact that we were in for a big thing.

1512. *Chairman*: I want to ascertain, if I can, something about Mr. Mulliner; because he has been represented before us as a very much abused person. Mr. Mulliner was then in the employ of the firm of which you were then manager?

Sir Reginald Bacon: No, Sir.

1513. *Chairman*: Was he not then with the Coventry Ordnance Works?

Sir Reginald Bacon: No. The sequence of events was this. Mr. Mulliner was the head of the Coventry Ordnance Works and a very capable man. He was managing director. I am talking about the early part of 1909.

1514. *Chairman*: Was it not for the Coventry Ordnance Works that you asked the War Office to give an order?

Sir Reginald Bacon: I did not go there until after Mr. Mulliner had left.

1515. *Chairman*: I see.

Sir Reginald Bacon: What happened, briefly, was this. Mr. Mulliner was the head of the firm and he was very anxious to get an order for gun mountings. We were very anxious to give him one, and the Controller and I arranged that he should have an order for 13.5 gun mountings. Unfortunately, the Board decided to build a 9.2 cruiser—which was a lapse on their part. So we said it would be better to give the Coventry Ordnance Works the 9.2 mountings instead of the 13.5 for the first order. Having settled that, and having settled the other orders for the year, the Board suddenly decided not to go through with the 9.2 cruiser. That threw over the Coventry Ordnance Works and their 9.2 mountings. Mr. Mulliner was so angry about that that, unfortunately, he had an interview with the Press and gave away certain communications he had had with the Cabinet and, for that reason, he had to leave the Coventry Ordnance Works.

1516. *Mr. Spender*: Communications with the Cabinet or with the Admiralty?

Sir Reginald Bacon: The Cabinet, in the end.

1517. *Chairman*: I want the sequence of events. Did Mr. Mulliner go out to Germany on his own account?

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[Continued.]

Sir Reginald Bacon: Yes.1518. *Chairman:* That was before you were connected with the Coventry Ordnance?*Sir Reginald Bacon:* That is so.1519. *Chairman:* What was your position at that time?*Sir Reginald Bacon:* Director of Naval Ordnance.1520. *Chairman:* And then Mr. Mulliner came and reported to you what he said he had ascertained in Germany?*Sir Reginald Bacon:* That is so.1521. *Chairman:* Are you able to say that his report was a report of actual facts, or an invention?*Sir Reginald Bacon:* I have every reason to believe that it was absolute fact. There is not the slightest doubt. The only part I remember particularly was one about larger planing machines. That is not the sort of story that anybody would invent. It would never enter their head to invent it, but the fact that they were ordered then, and that armament work was the only work on which they could be employed, pointed directly to Krupp's expanding in their armament factories. Ordinarily speaking, any firm would want only one of those to turn out a set of 13-5 mountings because you would take your different roller paths in succession, but if they ordered anything like four, it showed they were going to have a big push suddenly. That was the point that was in my mind.1522. *Chairman:* I understand the suggestion is that Mr. Mulliner invented something for which there was no foundation at all in fact, in order to try and get an order. It is your view that he was reporting what he had actually ascertained?*Sir Reginald Bacon:* Absolutely. I do not think the idea entered anybody's head at the Admiralty before or after that he had invented anything.1523. *Chairman:* He came to you for the purpose of getting an order if he could?*Sir Reginald Bacon:* No. He came to me in the ordinary course, like the heads of other firms did, about the different orders they had got or prospective orders they were going to get. It was absolutely nothing to do with the information he gave me. It was the same thing when Sir Trevor Dawson gave me the information about the nickel; it was only in the course of an interview about some other manufacture. It was nothing to do with him getting orders. The matter was so important that I passed it on to Mr. McKenna.1524. *Chairman:* But I suppose when he conveyed the information to you he thought it might possibly influence the order.*Sir Reginald Bacon:* Not in the slightest. The orders you give to firms are so stereotyped. You have only a certain number. As Director of Naval Ordnance at the Admiralty, I only had a certain amount of armament orders to give for the ships ordered. A certain portion had to go to Woolwich, by government decision. Then Vickers and Armstrongs had to have a share, and the Coventry Ordnance Works, which had then poked their nose in, also had to have a share. There was no necessity for my having to go outside the ordinary sequence. The thing was so stereotyped.1525. *Mr. Spender:* Would not the fact that the orders for the gun mountings had been varied and altered enter into it?*Sir Reginald Bacon:* No, Sir. We wanted to give one set of gun mountings to Coventry, to cut their teeth. The Controller and myself decided to give them one set of 13-5. The remainder of the orders were to be apportioned between Vickers and Armstrong. Then when the 9-2 cruisers were started subsequently, as an addition to the programme, we thought it was better to give Coventry the smaller guns first and to let the other firms take the bigger mountings, which we did.1526. *Mr. Spender:* What I am suggesting is: Might not that have justifiably annoyed Mr. Mulliner?*Sir Reginald Bacon:* It did.1527. *Mr. Spender:* And might he not then have come to you and said he had information of these large gun mountings in Germany, as an inducement to you—1528. *Chairman:* That was not the order of events?*Sir Reginald Bacon:* That was not the order of events; and if he had I should have paid no attention. Information like that is of negligible account.1529. *Chairman:* That was in 1900, was it not?*Sir Reginald Bacon:* Yes.1530. *Chairman:* Shortly after that you retired, did you, in order to take up this position with the Coventry Ordnance Works?*Sir Reginald Bacon:* Yes, that is so.1531. *Chairman:* It is suggested that people who occupy that sort of position and take that course get special consideration from the Government. You do not seem to have got it when you went and asked for your fuses. That is the only instance we have got.*Sir Reginald Bacon:* I can assure you, Sir, that so far from getting any special consideration it was rather the reverse; because naval officers are apt to be rather annoyed if one of them does leave and go to a private firm. And, as I pointed out, in mentioning my interview with Mr. Churchill, both the Controller and Director of Naval Ordnance, who were really personal friends of mine, wanted to abolish the Coventry Ordnance Works—or rather, cut them off from manufacture, in peace time. Mr. Churchill, who, as I say, has always been very statesmanlike, said "No."1532. *Chairman:* One more question about Mr. Mulliner: Did you or the Government have information, apart from Mr. Mulliner, which conveyed the same sort of impression?*Sir Reginald Bacon:* Yes. The information came from our Attaché. After all, attachés only get more or less what the Government want to give them. Still, you can read a good deal between the lines. He was very much impressed with the fact that the Germans were tending towards increasing their programme. Again, there was a good deal of doubt about one particular ship that was being built by Blum und Voss; they had sentries all round the factory and it was very, very secret. We had information that there was very little doubt that they were building a battleship, although they put it down as an ocean liner.1533. *Chairman:* Now I want to ask a question about competition. You lay stress upon the value of competition, and I see you say in your Note: "My only solace was the fact that we had as our independent designers three armament firms and Woolwich."*Sir Reginald Bacon:* That is so.1534. *Chairman:* Which are the three you are referring to?*Sir Reginald Bacon:* Coventry, Vickers and Armstrongs.1535. *Chairman:* Vickers and Armstrongs have since been amalgamated, have they not?*Sir Reginald Bacon:* I believe so. I do not know the details.1536. *Chairman:* From the point of view of competition, the more armament firms there are the better?*Sir Reginald Bacon:* Oh, much!1537. *Chairman:* With regard to Woolwich and the private firms, you were telling us that the government issued applications for tenders, and the private firms tendered, but Woolwich never did tender.*Sir Reginald Bacon:* No.

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[Continued.]

1538. *Chairman*: We are told that Woolwich is in a special position, because there is no appropriation in the annual estimates for Woolwich. It is nominal.

Sir Reginald Bacon: Quite!

1539. *Chairman*: And they are supposed to make both ends meet—I mean that the expenses and receipts are supposed to be exactly equal.

Sir Reginald Bacon: Quite; on paper!

1540. *Chairman*: Yes. Of course, it is all on paper.

Sir Reginald Bacon: All on paper!

1541. *Chairman*: Therefore if they find that their expenditure is above what they proposed to charge for something do they increase the charge in order to make ends meet? How is that worked?

Sir Reginald Bacon: It works like this: Suppose they get an order for a 12-inch gun. When they have finished the 12-inch gun they send in the bill for what it has cost them to make it. That is all. Whatever it has cost them to make it we have to pay. They do not have a body of shareholders waiting for the annual meeting wanting to know why they have not an annual dividend.

1542. *Chairman*: It is not the mere cost to make; because, as you point out, they charge a very substantial sum for depreciation.

Sir Reginald Bacon: Quite! But that was all added to the cost of the article. That was one thing of which we complained. When I was Director of Naval Ordnance we had a Committee that sat on Woolwich, to try and get their prices down, and we were always up against the brick wall of the reserve machinery and the big overhead charges. That was all lumped into the cost. And, of course, the annual output was extraordinarily small for a big concern like that. The overhead charges undoubtedly swamped it. Also there was no incentive—there never can be—to cheap manufacture by the government.

1543. *Sir Thomas Allen*: Have you any idea what their overhead charges were?

Sir Reginald Bacon: No.

1544. *Sir Thomas Allen*: You have told us in the case of private trade they were £600,000. How can you draw any comparison, if you do not know what the other overhead charges were?

Sir Reginald Bacon: I am only speaking from memory as to what happened when I was Director of Naval Ordnance.

1545. *Sir Thomas Allen*: You simply said in your evidence that they could not compete because of overhead charges.

Sir Reginald Bacon: Quite!

1546. *Sir Thomas Allen*: You have told us what the overhead charges were in private enterprise and what we would like to know is how they compare.

Professor Gutteridge: I understood the witness to speak of wages, not overhead charges.

Sir Thomas Allen: No. £600,000 for overhead charges, £1,200,000 for production of materials, and £1,200,000 for wages.

Sir Reginald Bacon: Quite so, Sir! I gave you those figures. They are roughly the figures which we used to work on, which remain in my memory. I also have in my memory that the costs of Woolwich were due to the high overhead charges. But, mind you, I am talking about a matter of 25 years ago.

1547. *Sir Thomas Allen*: But you do see that it would help us very considerably if we had comparative figures of the overhead charges?

Sir Reginald Bacon: Yes. They could be turned up in the reports of the committees; but I have not the foggiest remembrance of the actual figures.

1548. *Sir Thomas Allen*: It is rather unfortunate that you should quote the overhead charges in respect of private trade, and that we should be in the dark as to what are the overhead charges at Woolwich.

Sir Reginald Bacon: I had it brought home to me very closely when I was managing director of a firm that my overhead charges were nearly 120 per cent., instead of 50, on account of the small manufacture we had. So those figures naturally

remain in my mind. I knew that my rivals could manufacture sometimes at 50 per cent. while I was manufacturing at 120. A figure on paper about Woolwich does not remain in my mind after 25 years.

1549. *Sir Thomas Allen*: It did strike me, as a business man, that £600,000 overhead charges on an out-put of £3,000,000 was excessive for private trade.

Sir Reginald Bacon: If you take armament

manufacture you will find, if anything, that estimate

is below the actual cost. You have no idea. I

will take one small item that perhaps you have

never thought of. That is, the failures of tubes

for making guns. You may have a tube coming

in for a gun, you have got to rough machine it

before you can take a test piece. You do a certain

amount of work on it, you test it, and it falls

under test.

1550. *Sir Thomas Allen*: With regard to Woolwich,

we understand that repair work is the greater body

of output and that therefore the overhead charges

would be relatively higher on repair work as against

construction.

Sir Reginald Bacon: We had no repair work

at Coventry.

1551. *Sir Thomas Allen*: I am speaking of Woolwich.

Sir Reginald Bacon: I do not know how they

cost their repair work. I take it they charge, like

you always do, so much a shop. I dare say you know

that some manufacturers cost by machine; every

machine has its own cost and if that machine is

used for an hour the cost of that machine is added

on to the work. Other firms lump them together

and take the cost of a shop. That is to say, if they

are divided up, so that they have light machines

in one shop and heavy machines in another, the cost

of one shop per hour is so much and the cost of

another shop is so much. Then you have to put on

top of that your rates, your taxes, your water

supply, your electricity supply, your heating, light-

ing—all those permanent charges—and then you get

the sub-permanent charges like oil, waste and con-

sumable stores, which are very difficult to charge to

each individual job, and which have to be lumped

together.

1552. *Sir Thomas Allen*: The private armament firm

contracts for a completed article. It seldom gets

any repair work to do. Repair work is sent to

Woolwich Arsenal. Am I correct?

Sir Reginald Bacon: I should think you were

probably correct from the Army point of view, and

that the naval repair work would go to the dock-

yards. The reason for that is that we tried about

1896 or 1897 putting ship repair work out to private

firms, and the cost was prohibitive, because there

was no means of checking the overhead charges. But

there were several cases—I do not know whether

you remember—where we had repair work out to

contract, and that cured the Admiralty—I can only

speak for the Admiralty—of ever putting repair work

out to private enterprise.

1553. *Sir Thomas Allen*: Then it must necessarily

be the case that overhead charges where repair work

is undertaken in detail, and more particularly, must

be greater than in a firm where they deal with the

completed article only.

Sir Reginald Bacon: I had never thought of

the point before but offhand I should say it made

no difference if you cost per shop. Your job works

out at the number of hours the work is in the shop,

whether it is repair or whether it is new.

1554. *Sir Thomas Allen*: I am speaking now with

regard to having a contract for a finished product,

as against sending the machine in to be repaired.

Sir Reginald Bacon: But then you estimate

for the cost of the repair—you are talking about a

private firm?—

1555. *Sir Thomas Allen*: Yes.

Sir Reginald Bacon: —before you get the

order as a rule; but in the days of which I spoke we

did not, and that is where the trouble came in.

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[Continued.]

1556. *Chairman*: There is only one further matter that I wish to ask you about—that is, the McKinnon Wood Report. Would you mind taking a copy of the evidence* we had yesterday—Mr. Noel Baker's evidence? It is in paragraph 146 and onwards. The question is: What is the proper inference to be drawn from the terms of that Report? There is no detailed statement of the evidence that was given; there are only, apparently, the shorthand notes of the secretary, who took minutes, as it were, of the evidence of each of the witnesses and the details of each day's work of the Committee. That is all the material there is with regard to the evidence and so forth—except the Report.

Sir Reginald Bacon: Yes.

1557. *Chairman*: Two different views, apparently, have been taken with regard to the Report—one view has certainly. At present I rather hold another. The view of Mr. Noel Baker is expressed in paragraph 149. May I just read it, and then you will follow it? He says:

"It is true that their Terms of Reference restricted them to the future of the Government factories at Woolwich. But at that time Woolwich was employing 74,000 workers—far more than would be required for the peace-time needs of the nation. Thus the Committee were in effect reporting on how the nation should in future procure its arms. For a limited number of orders they had to choose among many potential sources of production—the pre-War ordnance factories, including Woolwich, the old established private armament firms, the new national factories, the other engineering firms which during the War had entered into armament production. If they chose to recommend that Woolwich should continue, and be given work, they were in reality proposing that the other sources of production should be closed down, unless by express reservation they made it plain that means should be found to keep these other sources in existence."

You were a member of that Committee, and I believe that you drafted the Report, or assisted to draft it.

Sir Reginald Bacon: I helped to draft it.

1558. *Chairman*: Is this the true inference from the Report of the Committee: That you proposed that the other sources of production should be closed down and that Woolwich alone should remain as the one source of production?

Sir Reginald Bacon: No. It most certainly was not the case; because so far as my memory serves me the question was never raised about not giving work to the other armament firms. I think that paragraph might have been somewhat loosely worded. I do not know, but it seems to refer to the extra works that were introduced. I can assure you I do not remember the question ever being raised on that Committee about the other armament firms being closed down. I would like to say that our great difficulty on that Committee was the fact that we could not find any commercial work which we could turn Woolwich on to. It seemed to be so foreign to the ideas of Englishmen for a government factory to start a selling department and have commercial travellers going about the country trying to sell, as it were, pots and pans, and things of that description. Several suggestions were made by the people at Woolwich as regards such manufacture but we could not recommend that they should do it. That was our great difficulty.

1559. *Dame Rachel Crowdy*: You say that Woolwich was badly situated for cheap manufacture; that they were a sheltered concern and the incentives to cheapen costs were absent. You would agree, would you not, that after the War broke out, at the end of 1914 and the beginning of 1915, the private manufacturers demanded higher prices than those at which Woolwich could produce war material?

Sir Reginald Bacon: Do you mean during the War?

1560. *Dame Rachel Crowdy*: Yes. I said "at the end of 1914 and the beginning of 1915". The private manufacturers in fact were asking higher prices than the price at which Woolwich could produce, were they not?

Sir Reginald Bacon: I do not know at all.

1561. *Dame Rachel Crowdy*: That is the conclusion I draw from Dr. Addison's evidence.

Sir Reginald Bacon: I cannot say. May I say one thing about those prices? They depended largely—of course, all price does—upon the number of orders they were given. There was a good deal of mixture. The private firms had probably had a good many different sorts of armaments to manufacture—possibly more than Woolwich. It is very difficult. I remember so well Lord Fisher once saying to his secretary "I want you to get me out figures about a certain deal". The secretary said "What do you want to prove, Sir?" Lord Fisher replied "What has that to do with you?" "Because", he said, "I can get you out figures to prove anything". The factors in manufacture are so many that you could produce absolutely true returns which would give you absolutely different ideas.

1562. *Dame Rachel Crowdy*: I am not thinking of returns. I am thinking of the correspondence submitted by Dr. Addison in his evidence. He says that private manufacturers had actually asked such high prices finally that the government had refused payment and fixed prices. Then, says Dr. Addison, the prices came down, and the private manufacturers were able to manufacture at the price fixed by the government and—to use your own words—to pay "dividends to the eagerly waiting shareholders." I think you used those words. I wondered whether, in your mind, the fact that the private manufacturers were asking higher prices than the cost of production at Woolwich, had anything to do with the shareholders eagerly waiting for dividends.

Sir Reginald Bacon: No. I think the work Dr. Addison did was magnificent, and I think the work that was done by the Ministry of Munitions in keeping prices down was magnificent; but it rather upholds my contention when you say that with the prices finally fixed, which were equal to or less than those of Woolwich, they were able to pay a dividend to their shareholders.

1563. *Dame Rachel Crowdy*: I was, in relation to my last question, not saying that they were equal to or less than those of Woolwich. I did not bring that into account at all.

Sir Reginald Bacon: My own experience is that the Ministry of Munitions did excellent work in keeping down prices. There is always a tendency, naturally, for prices to rise unless they get some check.

1564. *Dame Rachel Crowdy*: Then you said "I cannot imagine the British Government selling armaments abroad". Do you remember that?

Sir Reginald Bacon: Yes.

1565. *Dame Rachel Crowdy*: Many of our witnesses have envisaged that possibility, that the government might sell abroad. But in any case, do you feel that the export is frightfully important?

Sir Reginald Bacon: I do.

1566. *Dame Rachel Crowdy*: From the point of view of finance, or from what point of view?

Sir Reginald Bacon: From the point of view of wages.

1567. *Dame Rachel Crowdy*: There again you differ very much from many witnesses we have had, who declare the export to be almost negligible—£3,000,000 or £4,000,000 worth.

Sir Reginald Bacon: If you are prepared to discount £3,000,000 or £4,000,000 worth of orders, which, as I say, probably means employment for 10,000 or 12,000 people a year, well and good.

1568. *Dame Rachel Crowdy*: I am asking you for your opinion.

Sir Reginald Bacon: Why should we turn that over to a foreign country?

* See Minutes of Evidence, 10th Day, Appendix.

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[Continued.]

1569. *Dame Rachel Crowley*: I was very interested in your saying in your Notes that "a small country that obtains its armaments from another country is bound to it by very strong ties." I see your point of view. Anyone who has worked with the League of Nations for as long as I did knows that benefits by great countries are very clearly recognised by small countries when votes are taken and sometimes when moral support is required for leadership. But that may act in two ways, may it not? You state in your Notes that "when the question of re-arming the Turkish army came along the German Minister for foreign trade went to Constantinople and refused to leave until he had obtained the contract for his country. Had the Turkish army been armed with English pattern rifles, guns and ammunition the question of on which side Turkey entered the War would probably have received a different solution." I have been to Turkey and I have a good many Turkish friends. I have always understood from them that one factor in the case was the fact that the British had completed two cruisers for Turkey, and the moment war broke out, although Turkey had not then declared her future line of policy at all, those cruisers, which had been paid for and were finished, were not delivered. This created a strong feeling against the British. So occasionally it may act rather the other way.

Sir Reginald Bacon: May I explain that, because it is an interesting point?

1570. *Dame Rachel Crowley*: It has often been made.

Sir Reginald Bacon: The ships were being built were two battleships. One was subsequently called the *Erin*; the name of the other I forget. We seized them on the declaration of war. The result was that Turkey was at the mercy of the Black Sea Fleet and it was not until after the escape of the *Breslau* and the *Goeben* up the Dardanelles to Constantinople that Turkey felt herself strong enough to go into the War against us. If the *Goeben* and the *Breslau* had been stopped in the Mediterranean it was an even chance that Turkey would have come in on our side, because of the Black Sea Fleet, and it was the presence of the fleet of our allies in the Black Sea that made Turkey so sore about these two battleships being taken. I think that is the explanation.

1571. *Dame Rachel Crowley*: You would admit that the supply of armaments by a great power to a small country may act either way—for or against the supplying country—if orders given in peace time are not delivered in war time to governments which are neutral?

Sir Reginald Bacon: I really do not see why, unless you supply bad articles. If your munitions are supplied by a country, you have got to keep reserves, and you are bound to that country. It is a very, very great practical tie in my opinion.

1572. *Dame Rachel Crowley*: You are not bound to a country if it undertakes a contract and does not deliver it in the event of war breaking out?

Sir Reginald Bacon: You must draw a distinction between an order that is given in peacetime and what happens on the outbreak of war.

1573. *Dame Rachel Crowley*: I thought the order was given to Germany by the Turkish Army in peacetime?

Sir Reginald Bacon: Yes, but our battleships were a peace-time order. The order was given two years before.

1574. *Dame Rachel Crowley*: So was the Turkish Army's?

Sir Reginald Bacon: Yes.

1575. *Dame Rachel Crowley*: I have another question to ask. You said you thought that under the scheme you proposed prices could be fixed at the prices ruling one month before the outbreak of war, did you not?

Sir Reginald Bacon: Yes.

1576. *Dame Rachel Crowley*: What about the prices of raw material: Could private firms carry on on your basis, if raw material prices rose?

Sir Reginald Bacon: Yes, I certainly think you could fix all prices on the outbreak of war at

the prices which prevailed one month before the war broke out. That would be subject to modification afterwards, but it would be a standard to go upon until the Ministry got into its stride. That should be done.

1577. *Dame Rachel Crowley*: To prevent excessive prices?

Sir Reginald Bacon: To prevent excessive prices on the outbreak of war.

1578. *Dame Rachel Crowley*: The only other matter of which I have a note is a very unimportant one. You said, *apropos* Mr Mulliner, you thought it would never "enter their heads"—I put quotation marks there—to invent information. But in fact might it not enter their heads—I think it might quite well enter my head—to invent a story of that kind if I were not a particularly scrupulous person and if I wanted these possible orders. I am thinking of it rather in terms of the drug traffic, the fight against which I have been connected with.

Sir Reginald Bacon: Come, come! There is a little difference between the drug traffic and armament firms.

1579. *Dame Rachel Crowley*: But we know, do we not, that certain firms—we will not say in this country—have encouraged war scares, and certain newspapers owned by armaments interests have encouraged war scares, in order to get themselves orders. At least so I am told by members of the Nye Committee, with whom I talked a good deal in the States. Perhaps that has not happened in our country.

Sir Reginald Bacon: I cannot imagine it. I would like to make this point: You have not quoted me quite correctly. I did not say that no armament manufacturer would invent any story. I said that Mr. Mulliner could not have invented the story about the machines, because it was a point that would never have entered anybody's head. If I were to invent a story about armaments I should never mention the fact that a firm was putting in a particular class of machine.

1580. *Dame Rachel Crowley*: It would be rather a good story?

Sir Reginald Bacon: It would, if you thought of it. I should not trouble about such an abstruse point.

1581. *Dame Rachel Crowley*: Perhaps Mr. Mulliner, or Mr. X, Y or Z might.

Sir Reginald Bacon: No, no!

1582. *Sir Kenneth Lee*: You say in your Notes: "Another great disadvantage of concentrating manufacture in a single supply factory is that there will be no competition." Do you contemplate, if the State undertook all manufacture of arms, that there would be only one single factory?

Sir Reginald Bacon: I must honestly confess it is a contingency I never thought of before I read Dr. Addison's evidence, but he seemed to imply it, that the great economy was that you would have the whole of the manufacture under one head.

1583. *Sir Kenneth Lee*: You would not suggest that anything like that was likely to happen?

Sir Reginald Bacon: My goodness, no! I think it would be fatal.

1584. *Sir Kenneth Lee*: Supposing the government undertook to manufacture, it would undoubtedly have a number of factories?

Sir Reginald Bacon: Look at the Gilbertian situation that would arise. When you have one factory manufacturing cheaper than another, what happens?

1585. *Sir Kenneth Lee*: I am only asking you. Would not the government be likely to have a number of factories?

Sir Reginald Bacon: I do not think so. They must have a factory for each different sort of manufacture—guns and mountings would probably go to one factory, machines guns and shells would probably go to another. They would separate the factories from that point of view; but it would be highly uneconomical to have more than one factory manufacturing the same article.

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[Continued.]

1586. *Sir Kenneth Lee*: Do you think they would be willing to take the risk of having all the manufacture of one article in one place?

Sir Reginald Bacon: I think it would be taking a risk to have a single government factory. 1587. *Sir Kenneth Lee*: I am suggesting that the government could have factories in different parts of the country, up-to-date factories, and then there would be competition between the different factories.

Sir Reginald Bacon: Yes. But just consider for one moment. If you have six factories in different parts of the country, with the limited amount of manufacture that you have in peacetime, how uneconomical it would be! There would be an excuse, perhaps, for having a single factory for manufacturing one type of article in peace, because the peace orders might keep you running fairly economically, but if you were to split up your manufacture you would not have any economy, you would have all the overhead charges of the establishment, all the salaries of managers and all the rest of it. It would be a terrible expense. I think perhaps it would be well carefully to survey the amount of peace orders that come in and the extraordinary smallness of the quantity compared with the establishment that was forecasted by Dr. Addison to supply them. I am perfectly certain the cost would be so extreme that you would have an outcry at once.

1588. *Sir Kenneth Lee*: Could you tell us the amount that was spent by the Coventry Ordnance Works on research when you were managing director?

Sir Reginald Bacon: No, I could not. All I can tell you is that we had a drawing office with from 36 to 40 draughtsmen, which was a very heavy expense; but it was amply repaid.

1589. *Sir Kenneth Lee*: What sort of people did you have to do the research work?

Sir Reginald Bacon: We had no research work, speaking generally, apart from design. The pure research work was always done by the Sheffield firms, of which, I think, Thomas Firth and Son were the biggest as regards research. We did not have any research of our own at all.

1590. *Mr. Spender*: The question of the two Turkish battleships raises a rather interesting point. By what firm were they being built?

Sir Reginald Bacon: I could not say.

1591. *Mr. Spender*: But it is part of the contract, is it not, that in case of war a government may commandeer, for its own service, ships that are in course of building? Was not that part of the contract?

Sir Reginald Bacon: I could not say.

1592. *Mr. Spender*: Do you say it is not part of the contract, if a private firm undertakes construction of a battleship for a foreign country, that in the event of war the government should be able to commandeer it?

Sir Reginald Bacon: I could not say.

1593. *Mr. Spender*: It is commonly affirmed.

Sir Reginald Bacon: I have never had anything to do with contracts for battleships, but armaments must be subject to being commandeered.

1594. *Mr. Spender*: I am only speaking of ships built for neutrals—as Turkey was then. Did the figures that you gave us include the two Turkish battleships?

Sir Reginald Bacon: They had not come; they were not finished then.

1595. *Mr. Spender*: Your figures—I am not criticising them—differ a good deal from the ordinary official figures that have been given to us. I do not know whether you have read Mr. Woodhouse's *History of Naval Competition*.

Sir Reginald Bacon: Do you mean the figures as regards the Grand Fleet and the High Seas Fleet?

1596. *Mr. Spender*: Yes.

Sir Reginald Bacon: On the 1st January, 1915, the Turkish ships had not been delivered.

1597. *Mr. Spender*: They came in afterwards?

Sir Reginald Bacon: Yes.

1598. *Mr. Spender*: And was there not a Brazilian?

Sir Reginald Bacon: I cannot say. You get an accident in the Fleet and your numbers are reduced.

1599. *Mr. Spender*: Mr. Mulliner did not tell you about what really comes out in the German documents—that the Germans themselves, in spite of their denials, were preparing their 1911-12 programme in 1909?

Sir Reginald Bacon: Of course he did not know that, but we suspected it. Mr. McKenna was extraordinarily clever in deducing from the small amount of information we had, and his deductions were very close to what happened in the end.

1600. *Sir Philip Gibbs*: May I ask you what establishments were under your control when you were Director of Naval Ordnance?

Sir Reginald Bacon: None. I do not think I had any establishments.

1601. *Sir Philip Gibbs*: But you were in control of the naval arsenals?

Sir Reginald Bacon: No, nothing at all. 1602. *Sir Philip Gibbs*: What was your position, then, as Director of Naval Ordnance?

Sir Reginald Bacon: My position was this: I had to do with the design requirements of the new ships that were being built, all the ammunition, and guns, and gun mountings, and putting forward proposals as regards improvements in armaments—in fact everything that dealt with the armaments in the Navy. Nothing to do with the actual manufacture.

1603. *Sir Philip Gibbs*: I suppose you were brought in very close touch with the experts in each department?

Sir Reginald Bacon: Which department?

1604. *Sir Philip Gibbs*: The experts in the various departments supplying naval ammunition.

Sir Reginald Bacon: You mean the private firms?

1605. *Sir Philip Gibbs*: No, I mean the government experts.

Sir Reginald Bacon: The only experts we had as regards ammunition were the Ordnance Committee.

1606. *Sir Philip Gibbs*: Were you not in touch, for instance, with Colonel Dennis, who was directing the gun mountings and so forth at Woolwich?

Sir Reginald Bacon: Speaking generally, no. We used to work through the Ordnance Committee. I will not say that we did not occasionally, but it was not at all recognised.

1607. *Sir Philip Gibbs*: Were you able to form any judgment at all about the efficiency of the Royal Arsenal?

Sir Reginald Bacon: I should think the Royal Arsenal was extraordinarily efficient in the work it turned out. The only thing we had to judge on was the price. I think Woolwich turned out most excellent work always.

1608. *Sir Philip Gibbs*: But surely you were able to judge the quality?

Sir Reginald Bacon: Excellent!

1609. *Sir Philip Gibbs*: And also to judge the design?

Sir Reginald Bacon: Design is a very mixed factor. Woolwich had nothing to do with hydraulic gun mountings. They never made one. That was entirely private manufacture and the designs were entirely owing to Vickers and Armstrongs to begin with, with later modifications by the Coventry Ordnance. Guns were designed by Woolwich and by Vickers and by Armstrongs and the designs were submitted to the Ordnance Committee, who gave their opinion.

1610. *Sir Philip Gibbs*: What I am really trying to find out is whether you feel that in the Royal Arsenal and the Royal Ordnance establishments there were a number of very highly trained expert brains. Would you agree to that?

Sir Reginald Bacon: Yes, of course.

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1611. *Sir Philip Gibbs*: Is it not a fact that the private manufacturers draw many of their best brains from the naval establishments?

Sir Reginald Bacon: I should say no. I would put it a little differently. The private firms draw people with practical experience from the Arsenal and from the private establishments. When I went to Coventry I drew one man from Portsmouth who was worth his weight in gold to me, because of his practical experience in erecting mountings. While I was at Coventry I drew one man from the fuse factory who was almost invaluable to me from the point of view of practical experience, but I never drew any man for his theoretical experience.

1612. *Sir Philip Gibbs*: It is on record—I think it is really beyond dispute—that a great number of employees of private manufacturers are actually drawn from the Admiralty and from the Ordnance Works as directors and controllers.

Sir Reginald Bacon: Again, I think, it is nearly all practical work. When you come to consider the Navy, you had Lloyd and you had Honour, both gunnery officers, going to Armstrongs because of their practical knowledge. Trevor Dawson went to Vickers because of his practical knowledge. It is nearly all practical knowledge.

1613. *Sir Philip Gibbs*: You draw a distinction between practical knowledge and designing, in expert work?

Sir Reginald Bacon: Oh! greatly! You must remember this: The government are the only people who can carry on a full-scale trial, 12 inches to the foot, as regards armaments. Ships and everything else are built according to the government experience. The government have all the experience with regard to guns and gun mountings, and it is only by work between the government and private firms that you get the best article. The private firms supply a good deal of the brains and the government supply nearly all the practical experience. I started submarine boats in November, 1900, and I worked with Vickers. The Admiralty washed their hands of submarine boats. They would have nothing to do with them, because Sir William White was adverse to them. The engineer-in-chief washed his hands of the engines because they were petrol engines in a confined space. I went to Vickers and there we had a drawing office established on the ship side, and on the engine side. We worked out the whole of the design of the submarine boats right up to 1904, when they were proved to be a thorough success. Then the government departments took them over. That was a very good example of the way the private firms worked in with the practical experience of the navy and produced in the end the best results.

1614. *Sir Philip Gibbs*: The point I am trying to work out is this: That it might be possible under a different system to have complete control and manufacture of arms by the government and that previous experience shows that the government has a call on many of the best brains of the country. What I would like to ask you is this: Do you think that such a system is capable of expansion?

Sir Reginald Bacon: The great point is this: In this wicked world you have got to hold out financial rewards.

1615. *Sir Philip Gibbs*: Yes, I see you make a point of that. But may I ask you why you think it impossible for government to pay its servants properly?

Sir Reginald Bacon: They will not.

1616. *Sir Philip Gibbs*: Why not?

Sir Reginald Bacon: Because immediately the dockyard superintendent turns round and says "Here is a man of the same standing as myself at Woolwich who has had his salary increased. I want my salary increased".

1617. *Sir Philip Gibbs*: Surely the quality of a man's brains has to be taken into consideration, even in government service?

Chairman: It is quite new to you?

Sir Reginald Bacon: It is quite new to me. When you go over to America you find men who are paid £40,000 a year. I dare say you will find the managing directors of a great many concerns in England are paid £7,000 or £10,000 a year. But you cannot do that with government employees.

1618. *Sir Philip Gibbs*: I cannot see why not. Supposing we had a complete system of design in naval and military work why should we not pay these high experts the obvious market price of their brains?

Sir Reginald Bacon: Even if you have the best brains you still miss the irritation of competition. You must have competition to get the best results. 1619. *Sir Philip Gibbs*: But, after all, the navy is not subject to competition in its strategy, tactics, evolutions and in the control of a battleship. You would not say to me that because of the absence of competition naval officers are inefficient?

Sir Reginald Bacon: But there is competition. 1620. *Sir Philip Gibbs*: Not within the Navy?

Sir Reginald Bacon: Oh! yes. There is the most strenuous competition.

1621. *Sir Philip Gibbs*: Financial competition?

Sir Reginald Bacon: No. It comes down to finance in the end. Take every six months: The promotions from Lieutenant-Commander to Commander and from Commander to Captain.

1622. *Sir Philip Gibbs*: Why should not the same system be adopted in the government factory—promotion by merit?

Sir Reginald Bacon: How are you to judge merit?

1623. *Sir Philip Gibbs*: In exactly the same way as an admiral judges the merit of his captains. However, it is rather theoretical.

Sir Reginald Bacon: It is very theoretical.

1624. *Sir Philip Gibbs*: It is important from the point of view of our witnesses. Several witnesses, like General Sir Stanley von Donop and yourself, keep on stressing the point that because a man is a government servant he cannot be efficient. I think that is an argument that very gravely reflects on government servants.

Sir Reginald Bacon: Please do not read that into my evidence. I have never said that because a man is a government servant he cannot be efficient. What I do say is that every government department loses the incentive of competition.

1625. *Sir Philip Gibbs*: Is there not another incentive—honour and promotion?

Sir Reginald Bacon: Very little promotion.

1626. *Professor Gutteridge*: Do you mean that the job has become rather a "cushy" one?

Sir Reginald Bacon: That is so. They have not the constant irritation of having to show results. No government office need show any competitive results at all. And do remember this: That the people in positions like that of the D.N.O. and others at the Admiralty have war hanging over their heads, and they must have the best and the newest, and the only way to get that is by competition.

1627. *Sir Philip Gibbs*: That is a very argumentative thing?

Sir Reginald Bacon: It is.

1628. *Sir Philip Gibbs*: You yourself, as Director of Naval Ordnance, were not subject to competition; your promotion was due to ability; and in many other branches of civil life you get an incentive, not of finance, but of honour and distinction and achievement. Still, I will leave that point.

1629. *Chairman*: You have passed through a period of competition in your professional life?

Sir Reginald Bacon: I have.

1630. *Sir Philip Gibbs*: Competition with your brother officers?

Sir Reginald Bacon: It is just as keen.

1631. *Sir Philip Gibbs*: Why should there not be competition?

Sir Reginald Bacon: Because if you get into the routine of getting up every morning at the same

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time and catching the 8.30 and coming back every evening at the same time, you lose the competitive spirit.

1632. *Professor Gutteridge*: You do not get the same competition in the army as you do in the navy?

Sir Reginald Bacon: I cannot say about the army. I know that in the navy you have the most strenuous competition.

1633. *Sir Philip Gibbs*: You said once or twice in your evidence and once or twice in reply to your answers to questions that the costs of Woolwich were higher than those of private manufacturers.

Sir Reginald Bacon: Yes.

1634. *Sir Philip Gibbs*: But I must say that it seems to me that all the evidence we have previously had is dead against you on the subject.

Sir Reginald Bacon: I can only trust my memory.

1635. *Sir Philip Gibbs*: You were Director of Naval Ordnance from 1907 to 1909?

Sir Reginald Bacon: Yes.

1636. *Sir Philip Gibbs*: And in the same period there was a gentleman named Dr. Gilbert Slater, who, on behalf of the Woolwich Joint Conference on Discharges from the Arsenal, published in *The Times* the following advertisement of comparative prices. May I read one or two of these? For 18-pounder gun carriages—

Sir Reginald Bacon: It did not affect us in the navy.

1637. *Sir Philip Gibbs*: No, but these were articles turned out by Woolwich for which I have comparisons with private manufacturers. 18-pounder gun carriages—£343 14s. 4d.; contract work—£672.

Chairman: Were not these prices including the return on capital for erecting new factories?

Sir Philip Gibbs: No, Sir, because these are prices in 1907. There is a long list of them—13-pounder gun carriages: £400 at Woolwich; £631 for outside work. And all the other items in the list show a similar disproportion. That was for a period during which you were Director of Naval Ordnance?

Sir Reginald Bacon: Quite!

1638. *Sir Philip Gibbs*: And was before the War. So that there were not abnormal circumstances?

Sir Reginald Bacon: Quite!

1639. *Sir Philip Gibbs*: Does not that rather disprove your contention?

Sir Reginald Bacon: Certainly it does, but I only speak from memory of the naval prices. This is why it is fixed in my mind—I have no figures of any sort or description—I know ever so well, with the amount of money we had to dispose of, how irksome it was to have to go to Woolwich, who charged us more.

1640. *Sir Philip Gibbs*: I think on the evidence before us Woolwich did not charge you more. We have the figures, and so far as all the figures I have seen are concerned they did not charge you more.

Sir Reginald Bacon: I should very much like to check the figures. Why did we have—as you will see by referring to the records—something like four or five committees that sat on Woolwich and Woolwich expenses? The last one sat while I was there.

1641. *Sir Philip Gibbs*: I think it was due partly to the fact that there was no scientific costing system at Woolwich.

Sir Reginald Bacon: It was too scientific.

1642. *Sir Philip Gibbs*: Was that the trouble?

Sir Reginald Bacon: They had put all the reserve machinery, and depreciation on that, into current contracts. I do not know if those figures you have are the price charged or the actual manufacturing cost.

1643. *Sir Philip Gibbs*: In the Report of the McKinnon Wood Committee it is mentioned several times that it was very difficult to establish costs, because there was no definite or scientific costing system at Woolwich. That is stated several times in the Third Interim Report.

Sir Reginald Bacon: I cannot understand that, because I went down to Woolwich and saw the whole of their costing system. The trouble was the reserve machinery. Another thing: Woolwich is built on extravagant lines, with great big stone buildings. They had to charge depreciation on every building and so it ran up the costs.

1644. *Sir Philip Gibbs*: This is an important point for this Commission. It is one of the things that we have to decide. Therefore I want to press the point a little further. You rather took for granted that the overhead charges of a government establishment are almost necessarily higher than those of the private manufacturer.

Sir Reginald Bacon: No, Sir.

1645. *Sir Philip Gibbs*: You did not take that point?

Sir Reginald Bacon: Oh, no.

1646. *Sir Philip Gibbs*: You do not suggest that point with regard to Woolwich?

Sir Reginald Bacon: No. If you mix it with the reserve machinery it will be. You have to allow for your depreciation on your machinery and buildings, and you have to allow a very high rate, so if you have a large amount of reserve machinery and buildings it runs up the cost of the work tremendously. We always tried to separate the two—at least I did—the reserve side and the manufacturing side, but they would not do it.

1647. *Sir Philip Gibbs*: That experience does not seem to exist in other countries. For instance, the American Nye Committee reported that overhead expenses in government arsenals are slightly lower than in the private manufacturing firms, and there are no selling costs.

Sir Reginald Bacon: Did they have reserve machinery?

1648. *Sir Philip Gibbs*: I think they must have done.

Sir Reginald Bacon: I do not know. I would not take it at all for granted.

1649. *Sir Philip Gibbs*: Sir John Simon said that state arsenals are useful and necessary as a means of checking prices.

Sir Reginald Bacon: They are no good at all. It was our great complaint. That was why we backed up Coventry—Jellicoe and I—for all we were worth, in order to get an independent firm in who would check prices. Woolwich was quite useless for checking prices.

1650. *Sir Philip Gibbs*: That is not the experience recorded by Dr. Addison.

Sir Reginald Bacon: But Dr. Addison was working a totally different system. We were working under absolutely different conditions. I was working under peace conditions with a big arsenal and Dr. Addison was working with a highly, well organised system of ammunition supply. You cannot compare the two.

1651. *Sir Philip Gibbs*: Dr. Addison and other witnesses have produced a certain amount of evidence to show that the private manufacturers were established in certain rings. One does not want to give a sinister meaning to the word "ring."

Sir Reginald Bacon: They were.

1652. *Sir Philip Gibbs*: I notice that Mr. Arnold Forster, one of our witnesses, said that those armament rings were, and are still, in a position to play into each other's hands by collusive tendering for government contracts.

Sir Reginald Bacon: Undoubtedly.

1653. *Sir Philip Gibbs*: It is probably true?

Sir Reginald Bacon: It is probably true of every manufacture. Every manufacture must have a ring if it is going to succeed, otherwise you get undercutting and bankruptcy.

1654. *Sir Philip Gibbs*: But you also get high prices?

Sir Reginald Bacon: That is, the business of the government to check, and the government ought to be able to check it with the government factory.

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if you have your costing on a reasonable system the government factory should be able to check private firms. That is what I was trying to press home.

1655. *Sir Philip Gibbs*: I asked Dr. Addison one or two questions about these rings and I quoted some evidence which was brought before the McKinnon Wood Committee that there was a very close and important steel ring. Dr. Addison agreed that there was and he added lead, aluminium and other minerals; and he claimed that Woolwich was very severely handicapped in prices by not being able to break those rings. From your experience, would you agree with that?

Sir Reginald Bacon: I would not say they were very seriously handicapped, but they had to pay a bigger price for their steel than what the private manufacturer could arrange in his own shops. They put on their percentage of profit and Woolwich had to pay that.

1656. *Sir Philip Gibbs*: Do you not think that perhaps that is a slight point in favour of government manufacture, that is to say, that it would possibly reduce the cost to the nation?

Sir Reginald Bacon: Yes, but against that you have to put the fact that the government factory has not got to pay a dividend.

1657. *Sir Philip Gibbs*: No; but you also have to consider the point that the private manufacturers work on a profit system?

Sir Reginald Bacon: Yes; they work on a profit system.

1658. *Sir Philip Gibbs*: Which does not enter into national manufacture?

Sir Reginald Bacon: If the national factory has to pay more for its steel because it has to buy it from a private firm, still, at the same time, the national factory has not got to pay a dividend on its work and, therefore, the two, to a certain extent, are balanced.

1659. *Sir Philip Gibbs*: I feel myself that the cost to the nation might be higher under the private profit system.

Sir Reginald Bacon: It might. It all depends on checking prices. The Ministry of Munitions had a very sound scheme. There is no reason why that sound scheme should not remain in force and prices be checked. When the War commenced there was no system of checking prices and private manufacturers could charge what they liked.

1660. *Sir Philip Gibbs*: They did charge very heavily for cordite in particular, did they not? There was great trouble over cordite?

Sir Reginald Bacon: I do not know.

1661. *Sir Philip Gibbs*: I hope I am not troubling you by this series of questions.

Sir Reginald Bacon: I love it!

1662. *Sir Philip Gibbs*: I very much want to get your opinion. You say in your Notes, "As Director of Naval Ordnance I always had a haunting dread that when war broke out we might find that our enemies had something up their sleeves better than what we had, and that we should find ourselves at a disadvantage."

Sir Reginald Bacon: Yes.

1663. *Sir Philip Gibbs*: That is true, no doubt, but is it not also a fact that they might have our designs up their sleeves?

Sir Reginald Bacon: I would not mind that as long as we started on a fair basis. While I was at the Admiralty there were a lot of things that were confidential, but there were only one or two things that were secret—that I did not want the foreigner to know about. In my position as Director of Naval Ordnance, I would much sooner the enemy knew everything we had and that we knew everything they had, and that we started on a fair basis. But there was the mine. The mine has a very peculiar history. In our old mines we had an electrical arrangement inside so that when the mine was bumped it went off. That gave infinite trouble and

somewhere in the middle of the nineties we went in for new mines and laid it down as a maxim that electricity was not to be used. The Admiralty did not mean that electricity was not to be used. What they meant was that bare electrical contacts were not to be used. The Germans came along with a mine which had no bare electrical contact, but a complete wire circuit. The battery itself was empty. When the mine was bumped a glass tube was broken and bichromate of potash was dropped into the battery, thus making it active and the mine went off. We never adopted that mine. Our mines were quite efficient against ships, but not against submarines. Actually it was not until the end of 1917 that we got a design of mine supplied and approved which we could use for stopping submarines. I could have closed the Channel in 1915 absolutely to submarines if I had had the mines, but that one little slip-up made all the difference and cost us probably millions of tonnage of ships. It is a very ticklish thing, and I do beg of you, if you are going into any scheme, to bear in mind that war might break out and that we must be level with other countries.

1664. *Sir Philip Gibbs*: Under the private system of manufacture, the private firm, when they improve a design, may immediately, or subsequently, hand it over to potential enemies of this country, and that seems to me highly dangerous. Take, for instance, the Hadfield shell, which undoubtedly was the best armour piercing shell that had ever been made. Sir Robert Hadfield has sold his patent to other countries. Would you approve of that?

Sir Reginald Bacon: Certainly.

1665. *Sir Philip Gibbs*: It seems to me increasing our danger, whereas if we kept it to ourselves we could have that superiority?

Sir Reginald Bacon: Would you be prepared to pay Sir Robert Hadfield a sufficient amount of money for his shells to make it worth his while?

1666. *Sir Philip Gibbs*: I think so; yes.

Sir Reginald Bacon: Then you would grumble and say the cost is more than somebody else's! Hadfield was the only firm in England I had to do with that produced decent steel castings. Nearly every firm produced things like gorgonzola cheese. Hadfield was pre-eminent with his shell. But it is a fact that when we came to fight the battle of Jutland 50 per cent. of the shells failed.

1667. *Sir Philip Gibbs*: Probably that was due to bad material?

Sir Reginald Bacon: No. The only test of a shell is to fire it against armour plate and when you fire it against armour plate it has gone. We took one or two shells out of our cast and fired them against armour plate; if they succeeded we said the remainder were all right. You cannot test each shell.

1668. *Sir Philip Gibbs*: May I ask you this general question? Supposing there were a government monopoly of arms, do you think it would be more likely that we should keep very important secrets or improved inventions within our own hands?

Sir Reginald Bacon: As I say, there were, in my time as D.N.O., only about two secrets that are worth keeping. There are any number of confidential things.

1669. *Professor Gutteridge*: Was not the Brennan Torpedo one of the things?

Sir Reginald Bacon: The Brennan Torpedo. If you start me on that, I can go on for a long time! The Brennan Torpedo is a thing that could not run for more than 2,000 yards. It was all right in the old days, but the moment you got guns that could fire more than 2,000 yards, the Brennan went. I would infinitely sooner start with a clean sheet for all countries, everybody knowing what everybody else was doing; but you may find that other countries have got something up their sleeves.

1670. *Sir Philip Gibbs*: I am now going to put rather an argumentative question to you. You talk about the loss of trade to the country if the export

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of arms were stopped and you say that it would work out practically to this, that it would deprive about 10,000 men of their work and wages?

Sir Reginald Bacon: Yes.

1671. *Sir Philip Gibbs:* But may I suggest to you that the increase of armaments might lead to a war, which would deprive millions of men of their work and wages.

Sir Reginald Bacon: No, Sir. The increase of armaments will stop war.

1672. *Sir Philip Gibbs:* It did not do so in 1914.

Sir Reginald Bacon: No. Why did we go to war in 1914? For one single reason, and that was that the English government were not in a position to say to Germany, "If you side with Austria, we will go to war."

1673. *Sir Philip Gibbs:* You say we had an inferiority in one or two branches but, broadly speaking, we had a slight superiority over them at that time.

Sir Reginald Bacon: Speaking generally, we had a bigger superiority than when I told you, because that was only one particular date. A month after, and a month before, we had more ships and our superiority was greater. I do not want to stress that. The point was this, that Germany, if she went to war with us, must lose the whole of her merchant shipping and her colonies. She would never have gone to war with us if we had been in a position to say to her that she must not side with Austria. The bigger the armaments, the less likely you are to have war.

1674. *Sir Philip Gibbs:* The argument on the other side is that if we increase either our naval or military armaments, some other country will immediately increase theirs; so you get this constant extension of increase which finally leads to collision.

Sir Reginald Bacon: The question is, does it lead to collision?

1675. *Sir Philip Gibbs:* It does not, from our point of view, as long as we remain absolutely supreme, but it is extraordinarily difficult for any country to remain absolutely supreme.

Sir Reginald Bacon: I cannot see any evidence in history that armaments have led to war.

1676. *Sir Philip Gibbs:* Can you not? I think I could produce a good deal; but it would take a long time.

Sir Reginald Bacon: We stopped four wars between 1879 and 1914 by being strong at sea, and if we keep strong at sea we will stop wars. Do you not think so, Sir?

Sir Philip Gibbs: No. I do not.

1677. *Sir Thomas Allen:* Following up your reply to a question put to you by Sir Kenneth Lee that many government factories would be uneconomical: Where does the economy arise in having distribution of our requirements over many factories now?

Sir Reginald Bacon: What sort, Sir?

1678. *Sir Thomas Allen:* Private factories. We spread our orders now over many factories.

Sir Reginald Bacon: By competition. Competition is the whole basis of reducing prices and getting efficiency.

1679. *Sir Thomas Allen:* Do you really believe that there is any competition? You have told us that you had to share out the work between Woolwich and Vickers and one other firm.

Sir Reginald Bacon: Yes.

1680. *Sir Thomas Allen:* Would you regard that as being competition?

Sir Reginald Bacon: No, Sir, I should not regard that as competition, not in the particular case of the heavier gun mountings, but that is why we brought Coventry along. If the War had not taken place in 1914, probably later Coventry would have got the lion's share of the orders and the other firms would have had them reduced.

1681. *Sir Thomas Allen:* You have also told us, with respect to sales abroad, we cannot have a government going out for orders. Yet you tell us, in your Notes, "A small country that obtains its armaments from another country is bound to it by very strong

ties." Do you not think the ties would be very much stronger if they were receiving their supplies from a national factory or from a government, rather than from private individuals?

Sir Reginald Bacon: Yes, I do, but the sentimentalism from which we suffer would ever prevent an English government supplying armaments to other powers. Common sense would say, "Do it," but our sentimentalism would never allow it.

Sir Philip Gibbs: I must intervene at that point to say that we did supply armaments to foreign countries. I am sorry, Sir Thomas.

1682. *Sir Thomas Allen:* Not at all. (*To the Witness:*) You have visualised to us the possibility of a shadow ministry that would be ready in the case of any emergency. Do you think we ought to wait for an emergency before we set up machinery of this kind?

Sir Reginald Bacon: Yes, I do. If you can have a shadow ministry that can be efficiently brought into operation within a few days—we will say a fortnight or so of the outbreak of war, and which costs perhaps only £10,000 to £15,000 a year—it is infinitely preferable to having a government manufactory which will have to expand enormously on the outbreak of war and which in peace time will cost you a very large sum of money owing to its reserve manufacturing capacity.

1683. *Sir Thomas Allen:* You have told us that if and when the shadow ministry comes to operate in time of war you feel that the three services should then be free to procure their requirements where they please.

Sir Reginald Bacon: Oh! no, sir. I think you misunderstood me. What I said was this, that you would be obliged to keep a portion of the contract department at the Admiralty and a portion at the War Office for matters with which the Ministry of Munitions did not deal. All the munitions would have to be ordered by the Ministry of Munitions, the same as they were during the War.

1684. *Sir Thomas Allen:* I ask you that because Dr. Addison was very emphatic on that point. He pointed out the necessity of unified responsibility to eliminate waste and loss of efficiency through the three separate services acting independently of each other, which they did previous to the setting up of the Ministry of Munitions.

Sir Reginald Bacon: I quite agree. There is no doubt about that.

1685. *Sir Thomas Allen:* You told us that the fact of Woolwich having no other work to fall back upon themselves, prevented the establishment being properly balanced. Would you agree that economy in any state factory depends upon two things—that it should be fed adequately with orders, or, failing being fed adequately with orders from within, it should be free to manufacture for some other purposes externally?

Sir Reginald Bacon: No, I do not think it is possible. I cannot visualise a government factory going round and undercutting the smaller manufacturers. You would have such a row that you would not be able to withstand it. Woolworths are had enough, scooping up all the small shops in the villages and towns, but if you had a firm backed by the whole wealth of the nation going round and undercutting private manufacturers—

1686. *Sir Thomas Allen:* Do you think Woolwich has ever had an opportunity of proving itself a business organisation?

Sir Reginald Bacon: No; because it will never get enough orders for its reserve capacity.

1687. *Sir Thomas Allen:* How can it get enough orders if the government system is to allocate orders on the lines that you have indicated to us this morning?

Sir Reginald Bacon: Because if they got the whole of the orders it would not be enough to make Woolwich pay—not with the reserve machinery. Dr. Addison never forecasted how much reserve

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machinery you were to have, but if you were to have reserve machinery to compete at all with the conditions of the Great War the whole thing would be absolutely impossible.

1688. *Sir Philip Gibbs*: You would have to rely on the national factory?

Sir Reginald Bacon: Then do not have a factory. Have something which has proved itself most efficient, a shadow ministry which is able to take up the work left by the old Ministry.

1689. *Sir Thomas Allen*: We have been told in evidence that every chance has been given to private manufacture to keep going and that by reducing the output of the government arsenals and dockyards and by giving increased orders to private firms Woolwich has practically been starved. Would you agree to that?

Sir Reginald Bacon: No. As I said before, you cannot in peace-time give sufficient orders to Woolwich, if Woolwich is to be anything like the establishment that Dr. Addison has forecasted, to make it a financially sound concern.

1690. *Professor Gutteridge*: Would you call Lord Wester Wemyss a sentimentalist?

Sir Reginald Bacon: Yes, I should, to a certain extent.

1691. *Professor Gutteridge*: Did you see an official memorandum which he laid before the Admiralty in 1918? I think you were in France at that time.

Sir Reginald Bacon: In 1918 I was at the Ministry of Munitions.

1692. *Professor Gutteridge*: Have you Mr. Noel Baker's evidence before you?

Sir Reginald Bacon: Yes.

1693. *Professor Gutteridge*: If you look at paragraph 7 you will see an extract from Lord Wester Wemyss' memorandum:—"Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, the system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially." I do not want to read it all through. You might just glance at it. You see he concludes by speaking of a "subterranean conspiracy." That is the First Sea Lord of the Admiralty who is speaking, is it not? I should like your views on that.

Sir Reginald Bacon: I do not think my friend Lord Wester Wemyss knew anything at all about it. He was never in a private firm. He was simply repeating what lots of other people have said, that armament firms want war. I say from my experience that armament firms do not want war.

1694. *Professor Gutteridge*: You do not agree with him?

Sir Reginald Bacon: No, I do not agree a bit.

1695. *Professor Gutteridge*: I pass to something different. Perhaps you will agree with Sir Eustace d'Eyncourt. In the course of his evidence he said that wars were always won by the fellow who was a little bit ahead in armaments. Do you agree with that?

Sir Reginald Bacon: I would not agree with that at all. Venizelos said of England that we always won the last battle. Wars are very often won by those who strike first.

1696. *Professor Gutteridge*: Striking first might be a question of armaments.

Sir Reginald Bacon: It might be, but it depends on having the armaments ready. I think our great strength was due to Lord Fisher's insistence on having the Fleet instantly ready for war. It was not necessarily a question of size but it was instantly ready in all respects to strike.

1697. *Professor Gutteridge*: I think in addition to the Turkish warships that were building at the beginning of the War there were some ships building for some South American countries.

Sir Reginald Bacon: We were building some destroyers for Greece.

1698. *Professor Gutteridge*: Were not ships being built for the Chilians or the Brazilians?

Sir Reginald Bacon: I do not know. The only things fixed in my mind were the two battleships.

1699. *Chairman*: May I ask one question about the shadow ministry? I assume that your view of a possible shadow ministry would include some organisation which should keep an up-to-date and complete census of all available men and works and so forth.

Sir Reginald Bacon: Certainly.

1700. *Chairman*: That would not be shadow.

Sir Reginald Bacon: Oh! no. The paper information would all be there and the different firms would be notified, so that they would know exactly what was going to happen.

I only want to add this: I think Dr. Addison made a slight slip in regard to two things. One was about inventions by workers. He said the men did not get a chance, owing to the foremen. I think every reputable firm has a box in which any employee can put suggestions. They go before a small committee of the management, who decide whether they are worth anything. The other point was this, I think you said that thousands of inventions were sent in and very few were used. I have a paper there with the actual figures. Speaking roughly, during the War—I was Controller of Munitions Inventions at the end—47,624 suggestions were gone into, of which 226 were provisionally accepted for trial or adopted. Mind you, 226 in war-time is a great many. The point is that the whole of the 47,000 inventors, or the majority, were satisfied. It was the rarest thing to get a complaint. Practically speaking, the tank was the sole invention of Sir William Tritton and Major Wilson. The reason for the invention of tanks was simply this: I sat in 1918 on a committee which inquired into the question of tanks. People were groping after the idea of tanks up till almost the end of 1915. Then the idea suddenly struck some genius to write to the Royal Engineers Committee and ask them what they wanted the tank to do. It had never entered anyone's head to ask what the tank was required to do. The Committee said they wanted it to go over a 10-feet trench and up a 4-feet bank. If you take a piece of paper and put down those dimensions, you get the shape of the tank.

Chairman: Thank you very much, Sir Reginald.

(Adjourned.)

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

12

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

TWELFTH DAY

WEDNESDAY, 27TH NOVEMBER, 1935

WITNESSES—

MR. W. B. BROWN, C.B., C.B.E., Board of Trade
MR. C. HOWARD SMITH, C.M.G., Foreign Office
MR. W. ST. D. JENKINS, C.B., C.B.E., Admiralty
MAJOR C. S. NAPIER, R.E., War Office
WING-COMMANDER C. E. H. MEDHURST, O.B.E., M.C., Air Ministry
MR. A. E. SLATER, Air Ministry
MR. C. J. FLYNN, C.M.G., Customs and Excise

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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1935

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TWELFTH DAY

Wednesday, 27th November, 1935

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKS, P.C., G.C.B. (*Chairman*).

Dame RACHEL E. CROWDY, D.B.E., LL.D.,
R.R.C.
Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.
Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.
Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Mr. W. B. BROWN, C.B., C.B.E., Second Secretary, Board of Trade;
Mr. C. HOWARD SMITH, C.M.G., Assistant Under Secretary of State, Foreign Office;
Mr. W. St. D. JENKINS, C.B., C.B.E., Director of Contracts, Admiralty;
Major C. S. NAPIER, R.E., General Staff, War Office;
Wing Commander C. E. H. MEDHURST, O.B.E., M.C., Directorate of Operations and Intelligence, Air Ministry;
Mr. A. E. SLATER, Principal, Air Ministry;
Mr. C. J. FLYNN, C.M.G., Commissioner of Customs and Excise;
called and examined.

1701. *Chairman*: I should like to make a short preliminary statement with regard to the object of this meeting, in order that we may decide the procedure. The object of the meeting is to ascertain the exact practice with regard to the granting of licences for the exportation of arms, using that word in a general sense. We have asked for information from the Government Departments on that point, and we have been supplied with a very full Memorandum* prepared by the Board of Trade in collaboration with the Foreign Office, the Admiralty, the War Office, the Air Ministry, and the Board of Customs and Excise. In so far as we, the members of the Commission, are concerned, we are satisfied that this Memorandum contains full information with regard to what the practice is, and what the law in regard to the particular matter also is. This Memorandum has been or will be supplied to the Press, and therefore, unless any of those gentlemen who are here representing the particular Departments would wish, either themselves to read the Memorandum which they have prepared, or to have it read, we, the members of the Commission, having studied it and read it, do not see the necessity of it being read. However, we are very much in the hands of those who are here from the various Departments. Would you wish it to be read, or are you content that it should be treated as read?

Mr. W. B. Brown: I think my colleagues and I would be quite content that it should be treated as read, if that suits the convenience of the Commission.

1702. *Chairman*: Then any questions that appear to be desirable will be asked by the members of the Commission, and the gentleman representing the particular Department will answer. You will decide amongst yourselves who should answer any particular question that is asked?

Mr. W. B. Brown: Yes. I think it will be obvious to us without any consultation which Department is concerned.

1703. *Chairman*: So far as I am concerned, the first question I want to put is this: It appears to

be the fact, from the information that you have supplied, that the Government are in a position to actually prohibit the exportation of any kind of arms or munitions. That is the present state of the law?

Mr. W. B. Brown: Yes.

1704. *Chairman*: They can do it if they wish?

Mr. W. B. Brown: Yes.

1705. *Chairman*: It is entirely within their discretion whether they would prohibit all exportation or some particular branch of exportation?

Mr. W. B. Brown: Yes.

1706. *Chairman*: Then there are two forms of licence which are adopted—I am not now speaking of the Admiralty. There is the open licence and there is the restricted licence to some particular articles. That is right, is it not—there are the two forms?

Mr. W. B. Brown: There is the open general licence and the particular licence for particular articles.

1707. *Chairman*: In the first part of the Memorandum, which is headed, "History of the Control of Exports of Arms from the United Kingdom", there is given a statement of what the law is and what the proposals under the various Traffic Conventions have been, some of which have been ratified and some not, apparently, and as to the course of procedure which should be followed. Then in paragraph 18 it says: "From the foregoing it will be seen that His Majesty's Government have so far as concerns the licensing of arms, munitions and implements of war, amended their regulations as necessary from time to time so as to be in a position to give effect to the international arrangements which have been either in prospect or actually put into operation." Is that quite accurate? With regard, for instance, to the question of publicity, in the last American proposal with regard to the trade in arms a great point is made about publicity. Do we in this country insist upon publicity now to the extent which is indicated in that last proposal?

Mr. W. B. Brown: No, not at present.

1708. *Chairman*: Then it is not quite accurate to say that you have amended your regulations from

* Appendix I.

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[Continued.]

time to time so as to be in a position to give effect to the international arrangements which have been either in prospect or actually put into operation?

Mr. W. B. Brown: In that paragraph we were dealing with the licensing of arms. Perhaps when we drafted that we were thinking of publicity as almost a separate subject.

1709. Chairman: I see. Then the next part of the Memorandum is headed "Control of Exports of War Material in the United Kingdom" Paragraph 20 says: "The Board of Trade powers to regulate the export of arms from the United Kingdom are derived from Section 8 of the Customs and Inland Revenue Act, 1879, as amended and extended by Section 1 of the Exportation of Arms Act, 1900, and Section 17 of the Finance Act, 1921," and you set out in Annex A the provisions of the statutes and you refer to them; but I do not find anything in the statutes which refers to the granting of licences. The statutes only provide, do they not, for a prohibition of export? It seems to me to be assumed, from the fact that prohibition is possible, that the licensing system, as it were, is evolved out of that. There is nothing until you get to the Export Prohibition Order of 1931 which mentions licences, is there?

Mr. W. B. Brown: That is so. I am afraid I cannot tell the Commission exactly the origin of the licence system. It was instituted in the War period, and our records do not show the discussions which took place at the time. As you say, the Order in Council of 1931 expressly states that prohibition shall not apply to any exportation or shipment expressly permitted by a licence given by the Board of Trade; but we have hitherto been informed that we have the power.

1710. Chairman: I think I am right in saying that the first mention of granting a licence is found in that Arms Export Prohibition Order of 1931?

Mr. W. B. Brown: The 1921 Order in Council, I think, mentions the system of licences.

1711. Mr. Spender: Was there a separate Order in 1931?

Mr. W. B. Brown: Yes.

1712. Professor Gutteridge: That is the principal Order, I think, under which you work, is it not?

Mr. W. B. Brown: Yes. That is the Order under which we are operating now.

1713. Chairman: With regard to the system generally, the three Departments that are concerned, apart from the Admiralty for the moment, are the Foreign Office, the Board of Trade, and the Customs and Excise?

Mr. W. B. Brown: Primarily.

1714. Chairman: And the application for a licence is made in the first instance to the Board of Trade, is it?

Mr. W. B. Brown: That is so.

1715. Chairman: Are the Board of Trade under any statutory obligation to consult anyone else except themselves, or is it merely a matter of practice that they go to the Foreign Office?

Mr. W. B. Brown: Merely a matter of practice; there is no statutory obligation, but it has been laid down for us that we always must do it, merely by an act of the Government.

1716. Chairman: Have the Government issued any instructions to the various Departments as to how the working of this system is to be carried out, or has it grown up, as it were?

Mr. W. B. Brown: I think it has "just grown".

1717. Chairman: Is it competent for the Board of Trade, and do they in fact sometimes issue licences on their own motion without consulting the Foreign Office, if they think it is a case in which the Foreign Office are not likely to be concerned?

Mr. W. B. Brown: In the case of things which are not war material within the strict definition, we do; but with regard to things which are properly war material we invariably consult the Foreign Office.

1718. Chairman: When you speak of war material, that raises another point. Is it merely the manufactured article that you consider when the applications for licences are made, or is an application for a licence necessary for the raw material?

Mr. W. B. Brown: Not the raw material; but component parts are in some cases identifiable as war material.

1719. Chairman: But they must have arrived at a stage of being identifiable as munitions?

Mr. W. B. Brown: That is so.

1720. Professor Gutteridge: Have you any list which you work on, or anything of that kind?

Mr. W. B. Brown: Yes. I could if necessary supply the Commission later on with details on that point.* There is a list of the different categories of prohibited goods, and which of those are war material proper.

1721. Professor Gutteridge: I think that is somewhat important.

Chairman: For instance, are any instructions available to an exporter as to what it is necessary that he should apply for a licence for; because you told us that when an article has arrived at a stage when it clearly can be seen to be a munition, then the exporter will know?

Mr. W. B. Brown: Yes.

1722. Chairman: And he will then apply for a licence; but are there any rules laid down and published which would guide exporters as to the articles with regard to which they must apply for a licence?

Mr. W. B. Brown: There is the Order itself; I do not know whether that is really sufficient for the ordinary exporter, but our experience is that exporters in fact visit us at the Board of Trade and make many inquiries before accepting orders, because there is a fear that they may find that the goods are in fact war material and are prohibited.

1723. Chairman: That raises a question that I wanted to ask you about, and that is this: Whether or not exporters do come to ask for information before they accept an order; first of all, as to whether or not the order is one which would require a licence for export, and also as to whether or not the order is one in respect of which a licence for export would be granted?

Mr. W. B. Brown: Very frequently; and that is one reason, I think, why the number of refusals of licences may appear rather small; because in many cases the exporter has made inquiries beforehand and found that it was an order that he would not be allowed to fulfil, and therefore he does not apply for a licence.

1724. Chairman: We have been told that, in the view of a great many people, the application for permission (if I may use that expression) should arise at an earlier stage, and that a licence should be required in respect of any order which is given, and the application not confined merely to the licence for export—that the permission in an official form should be issued at an earlier stage. Do you see any objection to that?

Mr. W. B. Brown: I think that the manufacturers themselves at present would not think that it was necessary, inasmuch as in the first instance they are fairly familiar by now with the procedure, and they do not in fact accept an order for manufacture without finding out whether they will be or are likely to be allowed to carry out the order by completing the export.

1725. Sir Thomas Allen: Would Mr. Brown elucidate this matter by saying whether the orders are accepted and the goods made by the manufacturer before the licence is given, or do they come along actually after the manufacture?

Mr. W. B. Brown: No; the manufacturer comes for a licence generally, in fact invariably, before he accepts an order from a foreign government, and he may get a licence; and sometimes

* See Appendix III.

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[Continued.]

some of our licences may not exactly correspond with the final export, because he may come and ask for a licence and then not get the order after all.

1726. *Sir Thomas Allen*: There is a fresh licence for each specific order?

Mr. W. B. Brown: He generally applies for the licence at the moment at which he is thinking of tendering for the order, and he applies for it in respect of the order for which he is tendering.

1727. *Chairman*: If the general practice appears to be that exporters do take the precaution of coming to ask before they accept an order, it would not seem to be likely to hamper trade for that to be made compulsory, would it?

Mr. W. B. Brown: I do not see any serious objection *prima facie*.

1728. *Mr. Spender*: Have you provision, for cases in which licences have been granted and orders executed, for withdrawing the licences in the event of foreign complications, and so on?

Mr. W. B. Brown: All licences can be revoked at any time with or without reason given.

1729. *Mr. Spender*: So the manufacturer has to take that risk?

Mr. W. B. Brown: He is aware that it may be revoked, for instance, for reasons of Imperial security or because of any international agreement into which His Majesty's Government may have entered or may enter during the currency of the licence.

1730. *Dame Rachel Crowley*: I should like to ask a question in connection with that. In paragraph 35, you say: "The number of licences refused is small but this is to be expected as the suppliers well know the position and accordingly do not apply for licences where they know they will not be granted. Apart from this the Service Departments have a close understanding with the manufacturers, which enables them effectively to control the export of arms which might be prejudicial to Imperial security without recourse to the licensing system." When it is not a question of Imperial security, but a world situation in which we are not at the moment particularly involved, have you any right at all to suspend the granting of a licence or to hold your hand for the moment until you have inquired into the world situation?

Mr. W. B. Brown: I think so. Some of the licences to manufacturers of war material are described as liable to be revoked at any time for reasons of Imperial security or by reason of any international agreement into which His Majesty's Government may enter.

1731. *Dame Rachel Crowley*: That would really mean an embargo, would it not?

Mr. W. B. Brown: Yes.

1732. *Secretary*: Presumably "Imperial security" is capable of almost unlimited width of interpretation?

Mr. W. B. Brown: I think it is a term which becomes wider in its interpretation daily.

1733. *Mr. Spender*: In that case you would consult the Foreign Office?

Mr. W. B. Brown: Before the licence is issued, certainly.

1734. *Chairman*: May I go back to the point I was on just now? I asked you whether or not applications for licences should be made before the order is accepted. There is another point which has been made before us, and that is the question of publicity, and it has been said that it would be a matter of great advantage if full publicity were insisted upon in reference to any licence that was applied for and granted. Do you see any objection to publicity of licences for orders if that system was introduced; do you think it would be of any use, or do you think it would be objectionable?

Major C. S. Napier: I think we have to bear in mind the whole time the question of foreign competition. Publicity would inevitably place our own manufacturers at a serious disadvantage in

relation to their foreign competitors. I think that objection also applies, to a certain extent, to your suggestion that applications for licences should be required to be made before the order is accepted, or even before it is tendered for; because very often foreign governments place their contracts at rather short notice; their need may be serious; and anything which hampers our own manufacturers in tendering usually means simply that the order is placed elsewhere.

1735. *Chairman*: There is another question which I should like to ask with regard to publicity, and that is this: Of course, the suggestion has been made with reference to publicity that it might have the effect of restricting the manufacture and exportation of arms, but it has occurred to me that if publicity was given to an order placed, we will say, by Government A, might that have the effect of inducing Government B to say: "Well, now: A is placing an order for this quantity of arms, or this improved form of arm; we must do the same; we cannot be behindhand", and therefore the effect really might be the contrary to what is anticipated; it really would result in an increase in the manufacture of arms rather than the opposite?

Major C. S. Napier: There is that possibility, and there is also what I rather fear: that Government A would simply not place its order in a country where publicity is given to the state of its national defence.

1736. *Dame Rachel Crowley*: That would not apply if it was under international agreement?

Major C. S. Napier: No. We have no objection to universal action.

1737. *Chairman*: With regard to the general practice, is it left to each Department to exercise its own discretion in reference to the granting of licences, or is there any defined policy laid down by the Government with regard to the lines on which they should proceed?

Mr. C. Howard Smith: There is no definite policy laid down, I think; but in a case in which there is an application to export to a foreign government, or abroad, the Board of Trade naturally refers it to the Foreign Office, in case the Foreign Office might think, for reasons of policy, that the particular consignment should not go to the particular country. This is as far as the Foreign Office comes into it.

1738. *Chairman*: But the general policy seems to be not to discourage the granting of licences, but only to refuse them where there is some definite, obvious reason why they should not be granted?

Mr. C. Howard Smith: Yes, I think that is correct.

1739. *Chairman*: The policy is to grant them, and only to refuse them in definitely clear cases?

Mr. C. Howard Smith: Not to interfere with the trade more than is necessary.

1740. *Chairman*: That is perhaps a better way of putting it. You do not wish to interfere with the trade more than is necessary.

Sir Thomas Allen: Is the encouragement of the trade beneficial to our Services?

Major C. S. Napier: I do not think you can say that we encourage the trade, but I think your point is that we do not discourage it. I again say that what we have to consider the whole time is our relative position in relation to foreign powers. After all, the arms trade is at the moment an element in our national security.

1741. *Sir Thomas Allen*: I was wondering whether it was in the minds of the three Services that the more export trade we do the more efficient we would be at a time of emergency to produce for ourselves?

Major C. S. Napier: I think we can say that it is in our minds; but, if you agree, I would suggest that that falls under the major heading of the Terms of Reference, on which you will be taking evidence later.

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[Continued.]

1742. *Chairman*: Yes; it will fall under that head. We want, as far as we can, to confine ourselves to-day to the practice rather than to the policy. With regard to the Customs and the open general licence: to what extent do the Customs endeavour to ascertain whether there is any evasion of the rule about the exportation of arms under this system of the open general licence?

Mr. C. J. Flynn: Where there is an actual open general licence in existence the exportation is covered as far as the Customs are concerned.

1743. *Chairman*: I suppose it is possible, unless there is a certain amount of examination, to evade the provisions with regard to licensing in the case of munitions if a person chooses to attempt to evade them?

Mr. C. J. Flynn: All goods exported whether subject to prohibition or not are liable to examination before shipment, and our officers do examine occasional packages to check evasion.

1744. *Chairman*: You used the word "occasional," and you use that in the Memorandum?

Mr. C. J. Flynn: Yes.

1745. *Chairman*: To what extent is that done? Is it done systematically, sufficiently to bring home to the exporters that it is being done, or is it an occasional, casual examination?

Mr. C. J. Flynn: It is very difficult to say what is sufficient to bring home to the exporters what is being done, but it is a regular system. As regards exports covered by Board of Trade licence the position is that the packages must be produced to the Customs Export Officer before shipment. As regards other exports we have general powers which enable us to require any package which is shipped or about to be shipped to be opened for Customs examination and we do exercise those powers to see that the prohibition is not abused. Goods not requiring pre-entry are dealt with under those powers and consequently our statement that documents are only required within six days of the clearance of the vessel does not mean that such goods are never examined.

1746. *Professor Gutteridge*: I am not asking for any details, but have cases occurred in which you have examined packages and found them to contain prohibited articles?

Mr. C. J. Flynn: Yes, but very rarely. Of course, the inducement at present is not very serious. It must be remembered that an exporter is running a very grave risk if detected, because the penalties are very severe.

1747. *Chairman*: Do you think that the present system is satisfactory—I mean with regard to the possibility of evasion and the possibility of the examination of goods under this open general licence? Do you think the present system is satisfactory, or do you think it is possible to tighten it up in any way?

Mr. C. J. Flynn: I think it is reasonably satisfactory. It is extremely difficult to tighten the present system in any way which will not very seriously interfere with our export trade. The only method would be more intensive examination of packages which are brought for shipment, and it must be borne in mind that the bulk of trade is perfectly innocent, and the trader would naturally resent his packages being opened for what he considers no purpose.

1748. *Chairman*: That is the only possible alternative, namely, more intensive examination?

Mr. C. J. Flynn: I think so; unless it were found possible to control the position either at the factories or at the dealers, or at both. But, so long as control is exercised at the point of exportation, any tightening of the present system would, I think, involve a more stringent examination of exported goods.

1749. *Chairman*: Speaking generally, do you think

the present system, having regard to all the difficulties with regard to exporters, and so forth, is sufficiently stringent?

Mr. C. J. Flynn: I think it is. I think it is reasonably adequate for present purposes. Of course, in periods of emergency special precautions are taken—for example, in the present Italian position, all goods going to Italy are pre-entered.

1750. *Dame Rachel Crowdy*: Do any of the officials here to-day also deal with the drug traffic—do they deal with all the export certificates or licences?

Mr. W. B. Brown: No.

1751. *Dame Rachel Crowdy*: Do any of you know the licensing system applied to dangerous drugs in Great Britain?

Mr. W. B. Brown: I am afraid I do not.

1752. *Dame Rachel Crowdy*: Under that system, if a licence is issued for the export of drugs, the licence is only issued when the importer in the importing country gives a certificate from his government that those drugs are being received with the knowledge and consent of the government. Of course, in the case of drugs it says for medical and scientific purposes; that is a different thing. Do you feel that it would strengthen the application of your licensing system if something of that sort were introduced in connection with arms? It seems such an obvious analogy.

Mr. W. B. Brown: The export of war material is normally to governments already; the government is the consignee.

1753. *Dame Rachel Crowdy*: But is it always?

Mr. W. B. Brown: There are some exceptions—the Police Force in Shanghai, for instance; that is really a government, although it has not all the powers of a government. The war material ordered is not shipped to private individuals; and that in fact was the reason for the continuation of these powers after the War to stop war material ordered from getting into the hands of private sections or factions. There are in fact certain countries where we do require the production of a certificate from the government to which the material is consigned, but that is done at the request of those particular governments.

1754. *Dame Rachel Crowdy*: You never get a case in which our manufacturers, for example, ship to manufacturers in other countries, possibly to give them to a third country?

Mr. W. B. Brown: It does happen, but we make inquiries as to the ultimate destination, as far as we can, before we issue the licence.

1755. *Dame Rachel Crowdy*: If you found that the inquiries led to rather a suspicion in your mind, you would probably not grant the licence?

Mr. W. B. Brown: That is so.

1756. *Dame Rachel Crowdy*: You answered a question indirectly as to whether the officials here to-day see any gap in the existing licensing system, and your answer, I understand, was more or less "No"?

Mr. C. J. Flynn: Yes. I think it is reasonably satisfactory. I think I can say that any large or extensive shipment would certainly be detected. It is impossible to say that a separate package or a rifle could not be exported.

1757. *Sir Kenneth Lee*: We have had it stated in evidence that it is a fact that armament firms are free to export raw material and partly finished material which their associate firms abroad can assemble there?

Mr. W. B. Brown: That is so.

1758. *Sir Kenneth Lee*: Without any restrictions?

Mr. W. B. Brown: There is a restriction on certain component parts which are specified.

1759. *Professor Gutteridge*: Where are those specified?

Mr. W. St. D. Jenkins: In the Order in Council of 1931.

1760. *Sir Kenneth Lee*: Except for those component parts there is nothing to prevent other parts being shipped abroad?

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[Continued.]

Mr. W. B. Brown: That is so. They would very probably be component parts which it is very difficult to identify as parts of war material.

1761. *Sir Kenneth Lee*: In paragraph 22 you say: "The licence provides that the owner or shipper shall, if required by the Customs, produce proof that the goods were duly delivered at the destination named in the licence." Is it customary to require proof?

Mr. C. J. Flynn: We have on occasions required proof in cases of suspicion; but we can only call for proof of destination; that is to say, proof that the goods have reached the port to which they were consigned. That is not, of course, proof that they have not reached a prohibited area. The only evidence we get is a certificate of landing at the foreign port to which the goods were consigned. That normally is a certificate signed by the Customs Administration of the importing country.

1762. *Sir Kenneth Lee*: Then the goods could afterwards be delivered to third parties?

Mr. C. J. Flynn: Yes; unless, of course, the importing country is exercising some prohibition itself.

1763. *Sir Kenneth Lee*: It has also been said that chemicals in the military sense as elements required for explosives manufacture are not now included in the licensing system?

Mr. W. B. Brown: That is so.

1764. *Sir Kenneth Lee*: Can you say why they were excluded?

Mr. W. B. Brown: It is a question on which I cannot express an opinion as to how far our present powers go—whether those powers would enable us to control all the ingredients of explosives. I am pretty sure they would not. To go further and impose a prohibition and require a licence for the export of many commodities which are used for ordinary purposes of commerce to a much greater extent than they are ever used for war purposes, would be a very serious interference with the ordinary trade of the country.

1765. *Sir Kenneth Lee*: It would be a matter of inconvenience if they were included?

Mr. W. B. Brown: I think so. I doubt whether we have the power. The power may extend to gases, but I do not think the power would extend to raw materials.

1766. *Chairman*: When you are speaking of powers you are referring to the question to which Sir William Jowitt referred us, as to whether or not these particular articles or materials come within the terms of the prohibition?

Mr. W. B. Brown: Of the Customs Act?

1767. *Chairman*: Of the 1931 Order in Council.

Mr. W. B. Brown: It is a question whether this comes under the original statute.

1768. *Sir Kenneth Lee*: In Annex I,* paragraph 2, there is a statement which says: "... an agreement has been made with the industry which ensures that the firms notify the Air Ministry whenever a foreign order is in contemplation." Could we have a copy of that agreement?

Mr. Slater: That agreement is a confidential document, but I could send a copy to the Commission.

1769. *Mr. Spender*: There is nothing to prevent neutral commodities being brought within the scope of the prohibition. Take the case of petrol; you do not need a special Act of Parliament to bring that in?

Mr. W. B. Brown: I think we should. You have in mind the special case of the prohibition of exports to Italy, which is under the Treaty of Peace Act of 1919. We are able to do that as a result of decisions at Geneva which are part of the carrying out of the Treaty of Peace, and therefore we have powers under that Act.

1770. *Mr. Spender*: Otherwise you would want a special Act of Parliament?

Mr. W. B. Brown: I think so.

1771. *Mr. Spender*: It is your view generally, as I understand it, that these safeguards could not be very greatly improved except by international agreement?

Mr. W. B. Brown: Yes.

1772. *Mr. Spender*: Then we should get into a different region?

Mr. W. B. Brown: Yes.

1773. *Sir Thomas Allen*: We have been told that we have the strictest licensing system in the world. What I would like to ask is: Have we suffered in our exports because of our superior efficiency in respect of control?

Major C. S. Napier: I think I may say that we have suffered. It is rather a delicate subject.

1774. *Sir Thomas Allen*: And the strengthening of our licensing system at home, unless that was agreed internationally, would further handicap us?

Major C. S. Napier: Yes. We have always to consider what foreign nations are doing on the same lines.

1775. *Professor Gutteridge*: I take it you have power to give a pretty wide interpretation to the term "munitions of war", have you not, as used in these various enactments? What I am trying to get at is this: I notice there is a list scheduled to the Order in Council of 1931, and I was wondering how far you regard that as imposing a limit upon you, or whether in appropriate circumstances you would interpret "munitions of war" rather more widely than it is interpreted in that schedule?

Mr. W. B. Brown: It would be possible to interpret it still more widely.

1776. *Professor Gutteridge*: Would it be possible to bring poison gas in under that, do you think?

Mr. W. B. Brown: Yes; and there is at present a prohibition on the export of poison gas to Italy.

1777. *Professor Gutteridge*: Now another matter; I do not know who is the appropriate person to tell me this, but what about exports to the Dominions and other parts of the British Empire?

Mr. W. B. Brown: They go under licence.

1778. *Professor Gutteridge*: Do you deal with them in exactly the same way as you would with exports to foreign countries?

Mr. W. B. Brown: No. The licence is merely a formality; they have to have a licence to be produced for the satisfaction of the Customs, but it is just a formality.

1779. *Professor Gutteridge*: Do you make any inquiries as to what is likely to happen to them when they get there, if there is any possibility of re-export?

Mr. W. B. Brown: They are consigned to a Dominion Government, and it would be difficult for us to inquire.

1780. *Professor Gutteridge*: I follow that. They are not consigned to individuals, of course?

Mr. W. B. Brown: No. The applications in fact are made in London by the High Commissioners for the Dominions concerned.

1781. *Professor Gutteridge*: That answers my question.

Mr. W. St. D. Jenkins: And the Crown Agents I believe.

1782. *Professor Gutteridge*: I should like some more information with regard to what happens when munitions are shipped; I should like to know more about the system. When do the goods have to be entered?

Mr. C. J. Flynn: The prohibited goods?

1783. *Professor Gutteridge*: Yes.

Mr. C. J. Flynn: They have to be entered before they can be shipped.

1784. *Professor Gutteridge*: That is, before they are actually taken down to the ship's side?

Mr. C. J. Flynn: Yes. Goods which are subject to prohibition have to be entered with the Customs, and the licence produced in the ordinary way. The exporter will go to the Customs Office and produce his documents with his licence; the licence is there examined and sent down to the dock station, where the goods are being exported; there the goods

* Appendix 1, p. 340.

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[Continued.]

must be produced to our officer, who is constantly going backwards and forwards checking goods for drawback, export under bond and so forth, and the shipment has to be actually certified by our officer.

1785. *Professor Gutteridge*: But if anyone arrived with a case labelled (say) "Jam", containing machine guns, he might get it passed?

Mr. C. J. Flynn: It is possible. It would depend entirely on the vigilance of the officer. I should explain that these officers are engaged all day and every day on this particular work, and they are naturally familiar with the ordinary run of trade; they know the types of packages in which particular goods are packed, and their normal destinations, and if anything arrived of an unusual kind or in unusual quantities it would undoubtedly excite the officer's suspicion.

1786. *Professor Gutteridge*: There are obviously some goods which could not be smuggled out of the country?

Mr. C. J. Flynn: Yes. You could not very well take a tank out without the officer seeing it; and I think it is true generally that you cannot have any considerable exportation without attracting the officers' attention.

1787. *Professor Gutteridge*: Things like hand grenades and rifles, and so on, could be smuggled, possibly?

Mr. C. J. Flynn: Yes, they could possibly be, but not in large quantities. A man might have one in his baggage and it might not be noticed.

1788. *Professor Gutteridge*: You mean, if you had an abnormal number of packages coming along of a certain kind you would begin to get suspicious, probably?

Mr. C. J. Flynn: Certainly—or of an unusual character.

Major C. S. Napier: May I advance a remark on the subject of poison gas, to which you were referring a moment ago?

1789. *Professor Gutteridge*: Yes.

Major C. S. Napier: I should like to sound a note of caution as regards the present embargo on poison gas to Italy. That is a specific case; but it must be remembered that many poison gases have legitimate industrial uses. In the case of Italy it does not matter if we err on the side of restricting perfectly legitimate trade, but one ought not to jump to the conclusion that one could immediately apply the same embargo generally without reaction on legitimate chemical trades.

1790. *Professor Gutteridge*: I follow that. I think that, as far as I can see, the schedule to the 1931 Order seems to cover component parts of most lethal weapons, does it not?

Mr. W. B. Brown: I think so.

1791. *Professor Gutteridge*: I have just been looking at it. It has a very wide scope, I think. I do not know whether there is a Service representative who could bear that out. I think that list would cover most component parts, would it not?

Major C. S. Napier: Yes.

1792. *Professor Gutteridge*: It is rather difficult to think of anything which it would not cover really.

Mr. Slater: It does not cover component parts of aircraft, of course.

1793. *Professor Gutteridge*: Aircraft components are not covered by it?

Mr. Slater: No; not by the Order.

1794. *Professor Gutteridge*: There is nothing to prevent aircraft being exported so long as they are not of definite military design?

Mr. Slater: The position there is that aircraft do not require a licence unless they are definitely armed.

1795. *Professor Gutteridge*: That means fitted with bombs and machine guns?

Mr. Slater: Yes.

1796. *Professor Gutteridge*: Supposing you had a plane which was in fact a military plane, but the guns, and so forth, were not fitted to it, would it be possible to export it?

Mr. Slater: We ourselves control that, as explained in our statement.

1797. *Professor Gutteridge*: You would probably raise objections?

Mr. Slater: We should say whether it could go or not.

1798. *Professor Gutteridge*: Because otherwise it occurs to me that there is a way of evading the whole matter by first of all exporting the plane and then exporting the armaments.

Mr. Slater: We control the export through our arrangements with the firms of all kinds of aircraft except purely civilian aircraft.

1799. *Professor Gutteridge*: Have you endeavoured to control the export of engines and engine components at all?

Mr. Slater: Engines, but not engine components.

1800. *Chairman*: I wanted to ask a question about aircraft, but I omitted to do so. The question I wanted to ask was the one which was indicated by *Professor Gutteridge* just now, because one of the witnesses whom we have heard referred to this fact, or alleged fact, in these terms: "When the United States Senate Committee on Foreign Affairs was inquiring into the proposed embargo on war materials in 1932 it was stated in evidence (a) that European armament firms were sending high-class fighting aircraft to the Canton Government, leaving off the machine guns and calling them commercial planes, and (b) that armament firms were sending to China planes specified as civil, but were sending by post the blue prints indicating how these could be converted into military planes." Has anything of the kind occurred in this country? Has there been any instance of exporting a military plane without the guns, and then sending the guns separately?

Mr. W. B. Brown: Unless the Air Ministry could say, I do not think we have any knowledge of any such thing; but I would point out that the aeroplane, if it were fitted with gun mountings or with bomb racks or with interrupter gear, would be subject to licence, and, of course, the subsequent export of armaments for the aeroplane would also be subject to licence.

1801. *Professor Gutteridge*: In other words, it would be impossible for that situation to arise without a licence becoming necessary?

Mr. W. B. Brown: That is so.

1802. *Professor Gutteridge*: Perhaps the representative of the Air Ministry would like to answer that question?

Mr. Slater: The arming of an aircraft would include not only the actual guns, but also the arrangements for fitting the guns; not only the bombs, but the arrangements for dropping the bombs. If those are on the aircraft, the aircraft requires a licence. When they are not, then the aeroplane is subject to our unofficial control.

1803. *Professor Gutteridge*: But you would not regard the ordinary commercial plane as a thing which was adaptable to warlike purposes?

Mr. Slater: I think, to a greater or less degree, any aircraft is adaptable to military purposes.

1804. *Chairman*: We have had a considerable difference of opinion about that. Some witnesses say that a purely commercial aircraft cannot be adapted, whereas others say it can. Your view is that they could be adapted, or, at any rate, used?

Mr. Slater: Yes, but I am only giving my personal opinion.

1805. *Mr. Spender*: It has been put to us that it is growing more difficult every month; that the new types of military aircraft are such that the conversion of commercial aircraft becomes more difficult. Is that so?

Wing-Commander C. E. H. Medhurst: The term "military use" has a very wide interpretation. If one takes the conveyance of troops behind the battle-front, or of petrol for aeroplanes which are going to fight, this would be "military use", and

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[Continued.]

any commercial aeroplane could be used for that sort of work, although it would not be a military aeroplane in the true sense of that term.

1806. *Professor Gutteridge*: We have been told that it is impossible to drop bombs from an ordinary commercial plane. Anyone could throw a Mills hand grenade overboard from a plane, but the result from the military point of view would be nil. Effective bomb dropping is impossible from a commercial plane. Do you agree?

Wing-Commander C. E. H. Medhurst: Definitely, unless it is fitted properly as a bomb-dropping aeroplane, which would require many major modifications.

1807. *Professor Gutteridge*: And they would be obvious modifications which would be detected?

Wing-Commander C. E. H. Medhurst: Yes.

1808. *Sir Thomas Allen*: We have been told that any civil plane can be converted to that purpose within six or eight hours. Would you disagree with that?

Wing-Commander C. E. H. Medhurst: Definitely.

1809. *Chairman*: The present system with regard to aircraft and licensing is really a matter of voluntary arrangement, is it not, between the Government and the various manufacturing firms?

Mr. Slater: Yes, that is so.

1810. *Chairman*: It is a purely voluntary arrangement assented to, I suppose, by the firms?

Mr. Slater: I would rather put it that we imposed it on the firms and they have accepted it.

1811. *Professor Gutteridge*: So far as vessels of war are concerned, the system is somewhat different, is it not?

Mr. W. St. D. Jenkins: That is so.*

1812. *Professor Gutteridge*: That comes under the Foreign Enlistment Act, does it not?

Mr. W. St. D. Jenkins: The Treaties of Washington Act.

1813. *Professor Gutteridge*: I see that somewhere in the Memorandum the question is raised as to whether similar provisions might not apply to the case of aeroplanes. It is suggested that Section 11 (I think it is) of the Foreign Enlistment Act might apply to aeroplanes?

Mr. Slater: I think that is rather a doubtful point.

1814. *Professor Gutteridge*: It is Section 3. (Extract read.) Is that because hydroplanes might conceivably be considered as ships, or what was in the mind of the person who compiled the Memorandum and made that statement? It rather interests me.

Mr. Slater: My information is that Sections 8 to 10 of the Foreign Enlistment Act definitely do not apply to aircraft; and that the application of Section 11 is doubtful.

1815. *Professor Gutteridge*: I have always held the view myself that a hydroplane is not a ship. I suppose it is based on that, is it?

Mr. Slater: I think it is quite definite that a seaplane is not a ship.

1816. *Professor Gutteridge*: It might conceivably be a case for the extension of this principle to aeroplanes; you might have a case of an expedition being fitted out in the same way that arises with vessels of war?

Mr. Slater: That is Section 11, I think.

1817. *Professor Gutteridge*: Yes. Section 11 is wide enough to cover aeroplanes, is it not? "If any person within the limits of Her Majesty's Dominions and without the licence of Her Majesty's Government prepares or fits out any naval or military expedition"—that is not likely to happen, but there is a possibility?

Mr. Slater: Yes; I think that certain expeditions might come within that. I think the

application is doubtful. We should require to look at the particular circumstances.

1818. *Professor Gutteridge*: The thought crossed my mind as to whether it was possible there might not be a case for the extension of the same sort of principle to aeroplanes as to ships, but it is rather difficult to see how it could arise.

Mr. Slater: I think we meet that point by our present arrangements. We do in fact exercise that control by our agreement.

1819. *Professor Gutteridge*: But your control rests upon this agreement, does it not?

Mr. Slater: Yes.

1820. *Professor Gutteridge*: Have you any means of knowing what goes on in aircraft factories?

Mr. Slater: Yes. We have Air Ministry personnel permanently stationed there.

1821. *Professor Gutteridge*: Is that at each aircraft factory?

Mr. Slater: At each main aircraft factory there is a resident technical officer and a resident inspector.

1822. *Professor Gutteridge*: They are Air Force officers, I suppose?

Mr. Slater: No; civilians.

1823. *Professor Gutteridge*: Servants of the Ministry?

Mr. Slater: Yes.

1824. *Dame Rachel Crowdy*: With regard to the question of occasional search to which you referred, what exactly was that?

Mr. C. J. Flynn: The occasional examination of packages.

1825. *Dame Rachel Crowdy*: Have you any particular periods of time when search is made, or is it only when you are suspicious or when the officer feels like searching, or what?

Mr. C. J. Flynn: It is really left to the discretion of the Customs officers.

1826. *Dame Rachel Crowdy*: It is arbitrary?

Mr. C. J. Flynn: No; it is covered by law; but it is left to the discretion of the officer, and where his suspicions are aroused he will examine.

1827. *Dame Rachel Crowdy*: Probably only when suspicious?

Mr. C. J. Flynn: Probably; but he is required to do it occasionally in any case as a record that he is carrying out his instructions.

1828. *Dame Rachel Crowdy*: You mentioned that you thought the manufacturers would object very much if there was a much stiffer system of search. Are you right in that; because, after all, there has been no objection to the new measures with regard to searching for dangerous drugs—opium and morphine consignments, for instance; that has been accepted by the drug manufacturers. Do you think it would not be acceptable to the armaments manufacturers?

Mr. C. J. Flynn: I was not thinking of the armaments manufacturers; I was thinking about the traders in other goods. It is not the armament goods only which have to be examined. Goods which are absolutely innocent have to be examined in case they may contain prohibited goods.

1829. *Dame Rachel Crowdy*: That applies equally to drugs, does it not? Do you think that there would be an outcry if it was applied to armaments?

Mr. C. J. Flynn: I am afraid that any considerable increase in the examination of goods would mean a great delay of the export trade.

1830. *Dame Rachel Crowdy*: It would hold up ships?

Mr. C. J. Flynn: Yes. The exporter's goods have to be held up while they are being examined, and it may be that the goods are specially packed, with the result that he has to send a packer to re-pack them when we have examined them, and he may lose his ship and very probably his market.

1831. *Dame Rachel Crowdy*: It would probably slow up shipping generally?

Mr. C. J. Flynn: Undoubtedly.

* See Appendix II.

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[Continued.]

1832. *Dame Rachel Crowdy*: When you speak of licences—this is rather a delicate question—being issued by the Board of Trade, do all the requests for licences go to a senior and responsible official, or do junior officials deal with requests for licences?

Mr. W. B. Brown: There are a number of applications which are just common form, for material which is not really war material, but which is covered by the regulations; they are dealt with automatically; but with regard to the rest I have known cases which have got up to Cabinet Ministers as to whether a licence should be granted.

1833. *Dame Rachel Crowdy*: I was meaning applications which might not necessarily be suspicious, but might give rise to suspicion. Would they be dealt with by a junior official, or do all licences have ultimately to be "vetted" by a senior responsible official?

Mr. W. B. Brown: They would have to go in any case to the Foreign Office and the Service Departments. The application would be sent in a common-form letter by the official in charge of the licensing section of the Board of Trade to those Departments. It is very difficult to say whether there is any general rule as to how far it should go. Most of the licences which are issued by us—all but 4 per cent., I think, of our total number of licences—are not for war material properly so called; most of them are dealt with by not a very senior official. My category is Second Secretary to the Board of Trade, and during my short term of office I have seen two cases which have been put up to me.

1834. *Dame Rachel Crowdy*: There, again, they use their discretion?

Mr. W. B. Brown: Yes. I am afraid that is necessary in every organisation.

1835. *Dame Rachel Crowdy*: I think it is, but I also think it is unfortunate. We have had it suggested to us once or twice in connection with the licensing system that it would be a good plan to have an International Control Board, supposing any international agreement could be reached. Do you see any difficulty from the British point of view, if such a Board were set up, to your sending in the data

with regard to the number of licences issued, at short intervals, say once a fortnight, and for all licences to be recorded at a central place?

Mr. W. B. Brown: Information could be compiled, and a certain amount of information of that kind is now given regularly in Parliament in answer to Questions.

1836. *Dame Rachel Crowdy*: Do you think it would be practicable from the machinery point of view?

Mr. W. B. Brown: I think it would be possible, but the number of licences issued does not necessarily represent the exports.

1837. *Chairman*: We have not asked any questions about the Admiralty. I suppose the number of instances in which this particular question arises with regard to the construction of warships does not arise very often, does it?

Mr. W. St. D. Jenkins: No. Compared with pre-War, there has been a small number of ships built for foreign countries. Since the Armistice there has been a certain number of orders, chiefly for Portugal and Poland.

1838. *Chairman*: And the Treaties of Washington Act of 1922 does provide, does it not, for a considerable amount of publicity at all stages, at any rate as between the contracting parties?

Mr. W. St. D. Jenkins: Oh, yes, certainly. They interchange information.

1839. *Professor Gutteridge*: Supposing an application is made for the export of naval ordnance, does that go to the Admiralty?

Mr. W. B. Brown: It comes to the Board of Trade in the first place.

1840. *Professor Gutteridge*: And is then sent on to the Admiralty?

Mr. W. St. D. Jenkins: Naval Ordnance, not fitted in a warship, would come under the licensing system on export.

1841. *Professor Gutteridge*: But it would come to you from the Board of Trade?

Mr. W. St. D. Jenkins: Yes.

Chairman: I think, gentlemen, that is all we have to ask you. We are very much obliged to you for the very full information with which you have supplied us, and for coming here to help us. We now feel that we have complete information about the practice.

(Adjourned.)

APPENDIX I

MEMORANDUM PREPARED BY THE BOARD OF TRADE IN COLLABORATION WITH THE FOREIGN OFFICE, ADMIRALTY, WAR OFFICE, AIR MINISTRY AND BOARD OF CUSTOMS AND EXCISE.

THE LICENSING SYSTEM FOR THE CONTROL OF EXPORTS OF ARMS.

HISTORY OF THE CONTROL OF EXPORTS OF ARMS FROM THE UNITED KINGDOM.

LEGISLATION.

1. Legislation empowering the prohibition of export of Arms and Ammunition is traceable as far back as the Tonnages and Poundages Act (12 Charles II, Cap. 4), and these powers are perpetuated in several later Acts, e.g. 1755, 1825, 1833 and 1845. In Section 112 of the last-quoted Act (Customs Act, 1845) there is set out in a Table of Prohibitions and Restrictions Outwards, the following list of goods which may be prohibited to be exported by Proclamation or Order in Council:—

Arms, Ammunition and Gunpowder.

Military Stores, Naval Stores and any Articles (except Copper), which Her Majesty shall judge capable of being converted into or made useful in increasing the Quantity of Military or Naval Stores.

Provisions or any Sort of Victual which may be used as Food by Man.
The penalty for contravention of an export prohibition was forfeiture of the goods.

2. With the addition of a clause to cover goods "carried coastwise" this provision was embodied in section 150 of the Customs Consolidation Act of 1853, which, in turn, was re-enacted without amendment in Section 138 of the Customs Consolidation Act, 1876, and was repeated in Section 8 of the Customs and Inland Revenue Act, 1879, in similar words with the provision, in addition, of a fine for contravention of a prohibition, where previously the only penalty had been forfeiture. This last section is still in force.

3. So far, an Order or Proclamation prohibiting the export of arms could only be general, that is to say, any prohibition had to cover export to all destinations. By Section 1 of the Exportation of Arms Act, 1900, however, power was given to prohibit, by Proclamation, the exportation of arms to any specified country or place "whenever Her Majesty shall judge such prohibition to be expedient in order to prevent being used against Her Majesty's subjects or forces or against any forces engaged in military or naval operations in co-operation with Her Majesty's forces." The new powers were intended primarily to prevent the export of arms and ammunition to the Boxer insurgents in China. Immediately after the Act came into force, however, the Boxer rising was suppressed; and apparently no Proclamation prohibiting the export of arms to China was actually issued.

4. After the outbreak of the European War the power to make Proclamations prohibiting export was extended by the Customs (Exportation Restriction) Acts, 1914, to cover the export of all articles of any description; and by the Customs (Exportation Restriction) Act, 1915, power was given to secure that any article to which a prohibition applied was delivered to an authorised consignee. These extended powers were valid only in time of war; but they had an important bearing on the development of the export licensing system.

5. The powers to prohibit the export of articles other than arms, ammunition, etc., lapsed after the War; but Section 17 of the Finance Act, 1921, extended Section 8 of the Customs and Inland Revenue Act, 1879, to cover weapons and munitions of war of every description, and also firearms not

being weapons of war and ammunition for such firearms. It also gave power to prohibit shipments as ship's stores.

6. The text of those sections quoted above, which are still in force, is given in Annex A.

THE WAR PERIOD.

7. *Export Prohibition.*—Until the outbreak of the European War, although the necessary power existed, there was apparently no actual prohibition of the exportation of arms from this country.

8. In 1914, immediately on the outbreak of war, a Proclamation was issued under Section 8 of the Customs and Inland Revenue Act, 1879, prohibiting the exportation of certain articles, including arms and ammunition, to all destinations. The Proclamation was absolute in its terms, i.e., it made no mention of exports under licence, but a rough and ready export licensing system was devised almost immediately. At the outset applications for licences were submitted to the Customs, who forwarded them to the various Departments interested in the goods. In cases of doubt applications were submitted to the Committee on Trade with the Enemy—a body which had been established at the beginning of the War to deal with questions relating to the law on trading with the enemy. As the list of prohibited articles continued to expand it was found impossible for the Committee to deal with the great amount of work involved, and the War Trade Department was accordingly created by Treasury Minute, dated the 17th February, 1915, in order to control *inter alia* the issue of export licences. In addition the War Trade Department dealt with questions relating to the Black Lists, to embargoes, to agreements with trading bodies in neutral countries and to trading relations with Allies.

9. The prohibition of the exportation of war material continued without interruption until the end of the War, by which time almost everything which was capable of being of use to the enemy was on the prohibited list. With the cessation of hostilities, however, the export restrictions began to be relaxed, until the time came when only arms, ammunition, etc., remained subject to licence on exportation. The War Trade Department was wound up, in common with other war-time Departments, and the Imports and Exports Licensing Section became a unit of the Board of Trade.

POST-WAR CONTROL.

10. In 1919 the Board of Trade issued an open general licence authorising exportation without specific licence of cartridges, charges, etc., industrial explosives, double-barrelled guns and sporting rifles to certain destinations. This was subsequently modified, at the instance of the Foreign Office, in view of the provisions of the Arms Traffic Convention of the 10th September, 1919; and the revised open general licence excepted consignments to destinations within the prohibited areas specified in that Convention. (See paragraph 12 below.)

11. On the 24th March, 1921, the residue of the war-time Orders prohibiting the export of war material was replaced by a new Order defining, more closely than was done in the Acts of Parliament, the kinds of material whose export was prohibited, and making, for the first time, specific provision for

licences. The definition included fifteen classes of war material, which, although not quite so comprehensive, were substantially the same as classes (i) to (xv) of the list in the existing Order (see Annex (B)), and by a further Order made on the 13th December, 1921, the prohibition was extended to shipment as ship's stores. This last Order remained in force until 1931, when the ratification of the Ethiopian Arms Traffic Treaty, 1930, made it necessary to prohibit the export to Abyssinia of arms, including certain articles not subject to the requirements of a specific licence, viz., bayonets, swords and lances, and of aircraft (see paragraph 16 below). As the power to prohibit export to a specified country applied only where there were actual or threatened hostilities, a special Order prohibiting the export to Abyssinia could not be made. A new general Order was, therefore, made on the 19th May, 1931, extending the export prohibition to cover aircraft and bayonets, swords and lances, and at the same time an open general licence was issued permitting the export of those articles to all destinations except Abyssinia. The opportunity was taken to include separately in the prohibition certain classes of war material which had previously been regarded as falling within the classes specified in the 1921 Order. The text of the Order, which remains in force to-day, is given in Annex B.

THE ARMS TRAFFIC CONVENTIONS.

12. *The 1919 Arms Traffic Convention (Cmd. 414) signed at St. Germain-en-Laye.*—Under Article 1 of this Convention, the High Contracting Parties undertook to prohibit the exportation of a short list of "arms of war," except under licence. Under Article 2, they undertook also to prohibit the export of firearms and ammunition, other than arms and munitions of war, to certain specified zones. These included the zones covered by the Brussels Act of 1890 relating to the slave trade. The Convention also provided for the annual publication of certain statistics of licences issued. The export from the United Kingdom of the arms to which the Convention related was already prohibited, so that, if the Convention had been ratified, no further action on this score would have been necessary so far as this country was concerned. The Convention was, in fact, never ratified; but His Majesty's Plenipotentiaries had signed the Protocol which reads as follows:—

"At the moment of signing the Convention of even date relating to the trade in arms and ammunition, the undersigned Plenipotentiaries declare in the name of their respective Governments that they would regard it as contrary to the intention of the High Contracting Parties and to the spirit of this Convention that, pending the coming into force of the Convention, a Contracting Party should adopt any measure which is contrary to its provisions."

It was in accordance with the obligations which His Majesty's Government had assumed under the Protocol that export of non-military firearms and ammunition to the areas specified in the Convention was excepted from the Open General Licence of 1919.

13. *The 1925 Arms Traffic Convention* is very much wider in scope than that of 1919 as regards the classes of goods it covers, and in many other respects. The special zones in respect of which exceptional control has to be exercised, are, however, smaller in extent than the prohibited areas defined in the 1919 Convention. The goods to which the 1925 Convention relates are classified into five categories: Category I includes arms, ammunition and implements of war, exclusively designed and intended for

land, sea or aerial warfare; Category II, arms and ammunition capable of use for both military and other purposes; Category III, vessels of war and their armaments; Category IV, aircraft and aircraft engines; and Category V, gunpowder and explosives, and arms and ammunition of a definitely non-military nature.

14. The Convention stipulates that the export of articles falling within Categories I and II shall be permitted only under licence issued by the competent authorities of the exporting countries. As regards Category III, the Convention requires each Government to publish quarterly a return giving certain particulars of each vessel of war constructed for, or transferred to, the Government of another State. The Convention places no restriction on the exportation of articles in Categories IV and V, except when the articles are being sent to the special zones, in which case an export licence is required. In addition to the provisions relating to export licences, there are clauses in the Convention under which comprehensive import and export statistics have to be published at stated intervals. The form the statistics should take is indicated in annexes to the Convention itself.

15. This Convention was ratified by His Majesty's Government in 1930, with the reservation that ratification would not become effective until ratification by the other principal arms-producing States. This condition has not been met, but in general the Convention procedure for the licensing of arms, munitions, implements of war and aircraft is followed in this country.

16. *The Ethiopian Arms Traffic Treaty, 1930*, between the United Kingdom, France, Italy and Ethiopia, which was signed in Paris on the 21st August, 1930, applies the provisions of the 1925 Arms Traffic Convention to Abyssinia. It has been ratified by all four countries, and His Majesty's Government are, therefore, bound by its provisions so far as the export of arms from this country is concerned. Broadly speaking, the effect of the Treaty is that none of the articles covered by "The Arms Export Prohibition Order, 1931", may be imported into Abyssinia except under the authority of specific export licences, and export licences are not issued for articles falling within Categories I, II and IV, unless the application is supported by an import permit issued by the Ethiopian Government.

17. *The draft Arms Traffic Convention which is now before the League of Nations* covers practically the same goods as the 1925 Convention except that it is more definite in the description of certain component parts and it specifies in detail certain component parts of aircraft. This greater definition would involve some minor amendment of the Arms Export Prohibition Order. The draft Convention also provides for all aircraft to be subject to specific export licences. In some respects the new draft Convention is narrower than the 1925 Convention in that it does not cover explosives and weapons which are not used for military purposes, nor does it make any provision for special zones. The export licences would be issued only on production of permits to import from the importing country. The import of arms and ammunition into the United Kingdom is already subject to import licence.

18. From the foregoing it will be seen that His Majesty's Government have so far as concerns the licensing of arms, munitions and implements of war, amended their regulations as necessary from time to time so as to be in a position to give effect to the international arrangements which have been either in prospect or actually put into operation.

CONTROL OF EXPORTS OF WAR MATERIAL IN THE UNITED KINGDOM.

BOARD OF TRADE POWERS AND ACTION.

19. The Board of Trade is responsible for the issue of Export Licences in connection with the control of arms.

20. The Board of Trade powers to regulate the export of arms from the United Kingdom are derived from Section 8 of the Customs and Inland Revenue Act, 1879, as amended and extended by Section 1 of the Exportation of Arms Act, 1900, and

Section 17 of the Finance Act 1921. Under these enactments, power is given to prohibit by Proclamation or Order-in-Council the export or coastwise shipment of weapons and munitions of war of every description, as well as firearms not being weapons of war and ammunition for such firearms. (See Annex A.)

21. The present arms export licensing system has been in force without substantial alteration since 1921, but is now based on the Arms Export Prohibition Order-in-Council of 1931 which specifies 20 classes of material the export of which from the United Kingdom is prohibited except under licence. (See Annex B.) Open general licences (Annexes C and D) issued about the same time as the Order-in-Council permit the unrestricted export (except to certain destinations in Asia and Africa) of specified materials in those classes, such as shot guns and their ammunition and industrial explosives which are not in fact war material. The general effect is that the export of war material and rifled weapons of every description is subject to the issue of a specific licence by the Board of Trade, whatever may be the destination. (Aircraft which have no armament do not require a specific licence on export unless the destination is Abyssinia.)

22. The general procedure in connection with export licences is that application is made to the Board of Trade for the issue of a licence. The Board then consults the Foreign Office, and also the Service Departments in some cases, as to whether a licence should be issued, and if no objection is received the licence is given. The licence provides that the owner or shipper shall, if required by the Customs, produce proof that the goods were duly delivered at the destination named in the licence. The usual form of licence for war material (Annex F) which is restricted to exports to foreign governments, has no time limit on its validity, but is subject to the condition that it "may be modified or revoked at any time by the Board of Trade if they deem it necessary to do so (a) in the interests of Imperial security; or (b) in consequence of any international agreement to which His Majesty's Government are or may become a party". The alternative form of licence (Annex G) which is limited in validity to three months and subject to the condition that it "may be modified or revoked at any time by the Board of Trade without reason given" is used in those cases in which it is considered necessary to have a larger measure of control, e.g., in the case of dealers in arms. Thus there is effective control over the export of all arms and ammunition for war purposes.

CUSTOMS PROCEDURE ON EXPORTATION.

23.—(a) Arms must be entered before shipment under Orders made by the Board of Customs and Excise under Section 139 of the Customs Consolidation Act, 1876. Explosives as defined by the Explosives Act, 1875, must also be pre-entered under the above Section. (Ordinarily the only Customs document required for exported goods is a specification which may be presented six days after the exporting vessel has cleared.)

(b) The Board of Trade licence is endorsed by the Customs Officer with the nature and quantity of the goods loaded and is then returned to the shipper (or where the licence so requires to the Board of Trade) until such time as the quantity authorised under the licence has been shipped. It is then marked "Exhausted" and retained in the Department, or, if the terms of the licence so require, returned to the Board of Trade.

(c) The packages are identified by the Customs Export Officer prior to shipment. A special watch is kept on the loading of goods into ships bound for Italy to see that arms do not go on board. An occasional test examination of other export goods is made with a view to seeing that no arms are shipped without pre-entry.

ADMIRALTY CONTROL OVER VESSELS OF WAR.

24. The control of the building, equipping, and despatching of vessels of war under the Foreign Enlistment Act, 1870, and the Treaties of Washington Act, 1922, is carried out by the Admiralty, but naval armaments exported separately from a vessel of war are subject to the licensing procedure outlined above.

FOREIGN OFFICE ACTION.

25. The Secretary of State for Foreign Affairs is concerned in two ways with the issue of licences for the export of war material.

(1) He receives a notification from the Board of Trade that a licence has been applied for, and advises that the licence should or should not be issued.

(2) In exceptional circumstances he may inform the Board of Trade that the export of arms to a particular country or region is undesirable.

26. Each application for the issue of a licence received from the Board of Trade is considered on its merits, and consideration is given by the Secretary of State for Foreign Affairs to the following circumstances:—

(1) The nature of the consignment.

(2) The consignee. The general practice of His Majesty's Government is to issue licences for the export of war material only to governments or to the accredited agents of governments for delivery to them. In the case of material for testing purposes, samples for demonstration or exhibition, or accessories, reputable firms may be accepted as consignees.

(3) Conditions obtaining in the country to which the arms are to be exported. It may, for example, be desirable to refuse or suspend licences in time of civil disturbance.

(4) The international situation. It has, for example, been found desirable to refuse applications for licences to export arms to countries whose relations with other countries are strained.

(5) Treaty provisions. The export of arms to certain countries, for example, Abyssinia, is regulated by treaty. The Secretary of State for Foreign Affairs satisfies himself that the export of a consignment is in accordance with the treaty provisions in force before assent to the issue of a licence is given.

(6) Special circumstances. In the case of certain countries evidence that the government of the importing country has authorised the import is required. For example, in the case of China the authority of the Chinese Central Government countersigned by the Chinese Ambassador in London is required before a licence is issued. Some other countries have requested that reference should be made to their representatives in London before licences are issued.

(7) An embargo on the export of arms to a particular country or countries may be in force.

ACTION BY SERVICE DEPARTMENTS.

27. The concern of the Service Departments is to keep under observation the general trend of exports of arms. This information is conveniently obtained from the applications for licences. If any unusual movement of arms were observed, which bore upon the policy of His Majesty's Government, it would be expected that the Service Departments would call the attention of the Foreign Office to the facts.

A watch is also kept upon the applications to ensure that no weapons of secret design are exported; but as stated below the understanding with the manufacturers is so close that the possibility can virtually be ruled out, quite apart from the operation of the licensing system.

THE ARMS EXPORT LICENSING SYSTEM.

OBJECTS OF LICENSING SYSTEM.

28. From the historical part of this memorandum it will have been observed that before the War there was a power to prohibit but no licensing system. It may therefore be presumed that the primary objects of pre-War legislation were to conserve national resources and to prevent in time of actual or threatened war the export of arms and other material for use against this country and its allies. The War brought with it both prohibition of exports and a licensing system which survived after the War. Since then the powers have been adapted in peace time to other purposes, both national and international. A problem created by the War is described in the preamble to the Arms Traffic Convention, 1919, as "the accumulation in various parts of the world of considerable quantities of arms and munitions of war, the dispersal of which would constitute a danger to peace and public order," and the Preamble then goes on to state that "in certain parts of the world it is necessary to exercise special supervision over the trade in, and the possession of, arms and ammunition." The maintenance of the arms export licensing system, when other forms of prohibition on export disappeared after the War, appears to have had as its main aims the prevention of arms reaching native races, subversive elements and disarmed ex-enemy countries. The system has since found other uses, such as facilitating the imposition of embargoes on exports of arms and assisting foreign governments in regulating arms imports.

OPEN GENERAL LICENCES.

29. Under the existing system open general licences allow the export, without specific licences, of some categories of arms and ammunition and also of aircraft and aircraft engines, to any destination except certain areas in Asia and Africa. It will have been gathered from the historical section of this Memorandum that this roundabout method of providing for the licensing of the articles in question when destined to the special areas was maintained because of the limitations of existing legislation under which prohibitions relating to the export of arms in peace time must be general in character. Hence in order to give effect to the Ethiopian Arms Treaty a general prohibition had to be put into force.

30. Three Open General Licences have been issued by the Board of Trade. The first (Annex C) has the effect of requiring the issue of a specific licence for the export to Abyssinia of (a) aircraft, assembled or dismantled, and aircraft engines, and (b) bayonets, swords and lances, and component parts thereof. The second (Annex D) has the effect of requiring the issue of a specific licence for the export to specified land and maritime zones in Africa and Asia of (a) smooth bore shot-guns and ammunition for use therewith, (b) specified brands of smokeless gunpowder used in the manufacture of shot-gun cartridges, and specified industrial explosives. The third (Annex E) enables persons who hold firearm certificates to take abroad, without obtaining a specific licence, the firearms and ammunition described in the firearm certificate.

SPECIFIC EXPORT LICENCES.

31. So far as concerns the regulation of what is without question, war material, specific licences have to be obtained from the Board of Trade. The general procedure in connection with the issue of export licences is stated in paragraph 22 of this memorandum. The duty of preventing the export of unlicensed exports of arms where a licence is required falls upon the Board of Customs and Excise.

32. The list of Articles for which export licences are required is set out in the Arms Export Prohibition Order 1931 (Annex B). It includes articles which are not war material. In fact the number of licences issued for war material is only a very

small percentage of the total number of licences issued (see Annex H). Thus specific export licences are required under item (iii) for cartridges for some kinds of sporting weapons and for firearms used for industrial purposes; under item (iv) for explosives which can be used for both military and industrial purposes; under item (v) for rifled sporting weapons and for industrial apparatus such as humane cattle killers; and under item (xiii) for the large quantities of fuses for industrial use.

AIRCRAFT.

33. Unarmed aircraft and aircraft engines would not fall within the scope of the system of export licences if it were not for the Ethiopian Arms Traffic Treaty of 1930 (see paragraph 11), which required every consignment of aircraft and aircraft engines to Abyssinia to be specifically licensed. But the Air Ministry have had for many years a working arrangement with the manufacturers who supply aircraft and engines for the R.A.F., under which the consent of the Ministry is obtained before foreign orders for aircraft and engines are accepted and that Department consults the Foreign Office where considerations of foreign policy appear to be involved. A note on the Air Ministry action regarding export by the trade of aircraft and aero engines is attached as Annex I. The draft Arms Traffic Convention now under consideration by the League of Nations provides for the licensing, on export, of all aircraft whether military or civil, and also aircraft engines, as well as certain definite component parts of aircraft. If the Convention is brought into operation effect will of course be given to this provision.

LICENCES ISSUED AND REFUSED.

34. A statistical statement is attached (Annex II) which shows the number of arms export licences issued and the number of applications for licences to export war material refused in each year since 1929.

35. The number of licences refused is small but this is to be expected as the suppliers well know the position and accordingly do not apply for licences where they know they will not be granted. Apart from this the Service Departments have a close understanding with the manufacturers, which enables them effectively to control the export of arms which might be prejudicial to Imperial Security without recourse to the licensing system. When an embargo is in force the situation is that a total prohibition on the supply is imposed. If the position is doubtful the prospective supplier usually makes inquiries as to the position before taking steps to endeavour to secure an order and accordingly it is unusual for an application for a licence to be received when the circumstances are such that the application would be refused.

Board of Trade,

18th November, 1935.

ANNEX A.

EXTRACTS FROM ACTS OF PARLIAMENT.

CUSTOMS AND INLAND REVENUE ACT, 1879.

Section 8.—The following goods may by proclamation or Order in Council be prohibited either to be exported or carried coastwise: Arms, ammunition and gunpowder, military and naval stores, and any articles which Her Majesty shall judge capable of being converted into or made useful in increasing the quantity of military or naval stores, provisions, or any sort of victual which may be used as food for man; and if any goods so prohibited shall be exported or brought to any quay or other place to be shipped for exportation from the United Kingdom or carried coastwise, or be waterborne to be so exported or carried, they shall be forfeited, and the exporter or his agent or the shipper of any such goods shall be liable to the penalty of one hundred pounds.

EXPORTATION OF ARMS ACT, 1900.

Section 1.—It shall be lawful for Her Majesty by proclamation to prohibit the exportation of all or any of the following articles, namely; Arms, ammunition, military and naval stores, and any article which Her Majesty shall judge capable of being converted into or made useful in increasing the quantity of arms, ammunition, or military or naval stores, to any country or place therein named, whenever Her Majesty shall judge such prohibition to be expedient, in order to prevent such arms, ammunition, military or naval stores being used against Her Majesty's subjects or forces, or against any forces engaged or which may be engaged in military or naval operations in co-operation with Her Majesty's forces.

Section 2.—This Act shall be read as one with the Customs and Inland Revenue Act, 1879, and all the provisions of that Act, so far as they are applicable to the exportation of prohibited goods, shall apply as if they were embodied in this Act, and as if section 1 of this Act were part of section 8 of that Act.

FINANCE ACT, 1921.

Section 17.—(1) Section 8 of the Customs and Inland Revenue Act, 1879 (which gives power to prohibit the exportation and carriage coastwise of certain goods), shall extend to weapons and munitions of war of every description and firearms not being weapons of war, and ammunition for such firearms, as it applies to the goods therein mentioned.

(2) The said section, as amended by this section, shall extend so as to give power to prohibit the shipment as ship's stores, whether on vessels proceeding to foreign ports or on coastwise voyages, of any of the goods to which the said section applies, and the provision in the said section relating to a penalty shall have effect accordingly subject to the necessary modifications.

ANNEX B.

THE ARMS EXPORT PROHIBITION ORDER, 1931.

At the Court at Buckingham Palace, the 19th day of May, 1931.

Present,

The King's Most Excellent Majesty in Council.

Whereas by Section 8 of "The Customs and Inland Revenue Act, 1879", (a) it is provided that the following goods may, by Proclamation or Order in Council, be prohibited either to be exported or carried coastwise:—Arms, ammunition and gunpowder, military and naval stores, and any articles which His Majesty shall judge capable of being converted into or made useful in increasing the quantity of military or naval stores, provisions, or any sort of victual which may be used as food for man:

And whereas by Section 17 of the Finance Act, 1921, (b) it is enacted that Section 8 of the Customs and Inland Revenue Act, 1879, shall extend to weapons and munitions of war of every description and firearms not being weapons of war, and ammunition for such firearms, as it applies to the goods therein mentioned, and that the said section, as so amended by this section, shall extend so as to give power to prohibit the shipment as ship's stores, whether on vessels proceeding to foreign ports or on coastwise voyages, of any of the goods to which the said section applies:

And whereas by an Order in Council dated the 13th December, 1921, (c) made in pursuance of Section 8 of "The Customs and Inland Revenue Act, 1879", the exportation from the United Kingdom of certain articles was prohibited:

And whereas it is expedient that the said Order in Council should be revoked:

And whereas it is expedient to prohibit the exportation or shipment as ship's stores on vessels proceeding to foreign ports of the articles hereinafter enumerated:

Now, therefore, His Majesty is pleased, by and with the advice of His Privy Council, to Order, and it is hereby ordered, as follows:—

(1) As from the 1st June, 1931, the following articles shall be, and the same are hereby prohibited to be exported from the United Kingdom, or to be shipped as ship's stores on vessels proceeding to foreign ports, that is to say:—

(i) Cannon and other ordnance and component parts thereof;

(ii) Carriages and mountings and accessories for mountings for cannon and other ordnance and component parts thereof;

(iii) Cartridges, charges of all kinds, and component parts thereof;

(iv) Explosives of every description;

(v) Firearms of every description and component parts thereof;

(vi) Grenades and component parts thereof;

(vii) Machine guns, interrupter gears, mountings for machine guns and component parts thereof;

(viii) Projectiles of all kinds (except air-gun pellets) and component parts thereof;

(ix) Mines, land or sea, and component parts thereof;

(x) Depth charges, apparatus for the discharge of depth charges, and component parts thereof;

(xi) Bombs, bombing apparatus, and component parts thereof;

(xii) Flame-throwers and component parts thereof;

(xiii) Fuses and component parts thereof;

(xiv) Torpedoes and component parts thereof;

(xv) Torpedo tubes, or other apparatus for discharging torpedoes;

(xvi) Fire-control and gun-sighting apparatus and component parts thereof;

(xvii) Appliances for use with arms and apparatus exclusively designed and intended for land, sea or aerial warfare;

(xviii) Bayonets, swords and lances, and component parts thereof;

(xix) Tanks and armoured cars and component parts thereof;

(xx) Aircraft, assembled or dismantled, and aircraft engines.

Provided always, and it is hereby declared, that this Order shall not apply to any exportation or shipment as ship's stores which shall be expressly permitted by a licence given by the Board of Trade, and in accordance with the conditions (if any) of such licence.

(2) The said Order in Council, dated the 13th December, 1921, is hereby revoked.

(3) This Order may be cited as The Arms Export Prohibition Order, 1931.

M. P. A. HANKEY.

ANNEX C.

No. G.L. 110.

OPEN GENERAL EXPORT LICENCE.

In pursuance of the powers conferred upon them by the Arms Export Prohibition Order, 1931, the Board of Trade do hereby authorise and permit the exportation from any port in Great Britain or Northern Ireland to all destinations other than Abyssinia of the following goods, namely:—

Aircraft, assembled or dismantled, and aircraft engines;

Bayonets, swords and lances, and component parts thereof;

upon the following conditions:—

(1) That the Owner or Shipper of the said goods, if so required by the Commissioners of His Majesty's Customs and Excise, shall produce to them, within such time as they may allow, proof to their satisfaction that the said goods were duly delivered at a destination to which this Licence applies.

(2) That this Licence shall be deemed void and of no effect in the event of non-compliance with condition (1) as set out above.

(3) That this Licence may be modified or revoked at any time by the Board of Trade without reason given.

(4) That nothing in this Licence contained shall affect the powers of the Commissioners of His Majesty's Customs and Excise under any Act relating to the Customs or to the export of prohibited goods.

Dated the 1st day of June, 1931.

H. FOUNTAIN,
An Assistant Secretary
to the Board of Trade.

ANNEX D.

No. G.L. 111.

OPEN GENERAL EXPORT LICENCE.

In pursuance of the powers conferred upon them by the Arms Export Prohibition Order, 1931, the Board of Trade do hereby authorise and permit the exportation from any port in Great Britain or Northern Ireland to all destinations other than the destinations included in the special zones set out in the Schedule hereto, of the following goods, namely:—

(a) Smooth-bore shotguns and ammunition for use therewith;

(b) The following brands of smokeless gun-powder used in the manufacture of shotgun cartridges, namely:—

Amberite;
E.C. No. 3;
Empire;
Ideal;
K.S.G.;
Nobel No. 48;
Schultze;
Shotgun Neonite;
Smokeless Diamond.

(c) The following explosives, namely:—

Amazonite;
Amorcees;
Barwick;
Blasting Gelatine;
Bonbons;
Brocalite Gelatine;
Detonators;
Dynamite;
Dynobel;
Electric Detonators;
Fireworks,
Fog Signals;
Forcite;
Gelatine Dynamite;
Gelignite;
Glycerite;
Hertford;
L.G. Gelatine;
Monobel;
Nobel Gelatine;
Rex Powder;
Rockite.
Sabulite, No. 1;
Safety Fuses;
Samsonite;
Stonobel;
Super-Cliffite, No. 1;
Super-Cliffite, No. 2;
Super-Cliffite, No. 3;
Super-Rippite;
Super-Sabulite;
Thames Powder;
Tonite or Cotton Powder, No. 1;
Viking Powder;

upon the following conditions:—

(1) That the Owner or Shipper of the said goods, if so required by the Commissioners of His Majesty's Customs and Excise, shall produce to them, within such time as they may allow, proof to their satisfaction that the said goods were duly delivered at a destination to which this Licence applies.

(2) That this Licence shall be deemed void and of no effect in the event of non-compliance with condition (1) as set out above.

(3) That this Licence may be modified or revoked at any time by the Board of Trade without reason given.

(4) That nothing in this Licence contained shall affect the powers of the Commissioners of His Majesty's Customs and Excise under any Act relating to the Customs or to the export of prohibited goods.

Dated the 1st day of June, 1931.

H. FOUNTAIN,
An Assistant Secretary
to the Board of Trade.

SCHEDULE.

1. Land Zone.

(a) The whole of the continent of Africa with the exception of Egypt, Libya, Tunisia, Algeria, the Spanish possessions in North Africa, other than Ifni, and of the Union of South Africa, together with the territory under its mandate, and of Southern Rhodesia.

This zone also includes the adjacent islands which are situated within 100 nautical miles from the coast thereof, and also Prince's Island (Principe), in the Bight of Biafra, St. Thomas (Sao Thome), Annobon and Socotra, but does not include the Spanish Islands situated to the north of the parallel of 26° North latitude.

(b) The Arabian peninsula, Gwadar, Syria and Lebanon, Palestine and Transjordan, and Iraq.

2. Maritime Zone.

A maritime zone, which includes the Red Sea, the Gulf of Aden, the Persian Gulf and the Gulf of Oman, and is bounded by a line drawn from and following the latitude of Cape Guardafui to the point of intersection with longitude 57° East of Greenwich and proceeding thence direct to the point at which the eastern frontier of Gwadar meets the sea.

ANNEX E.

No. G.L. 112.

OPEN GENERAL EXPORT LICENCE.

In pursuance of the powers conferred upon them by the Arms Export Prohibition Order, 1931, the Board of Trade do hereby authorise and permit the exportation from any port in Great Britain or Northern Ireland to all destinations by the holder of a valid firearm certificate issued under Section 1 (1) of the Firearms Act, 1920, of the following goods, namely, the firearms and ammunition which are authorised by the said firearm certificate to be held in Great Britain or Northern Ireland upon the following conditions:—

(1) That the firearm certificate shall be produced by the holder with the firearms and ammunition to the Customs Authorities at the port of departure at the times of exportation.

(2) That this Licence shall be deemed void and of no effect in the event of non-compliance with condition (1) as set out above.

(3) That this Licence may be modified or revoked at any time by the Board of Trade without reason given.

(4) That nothing in this Licence contained shall affect the powers of the Commissioners of His Majesty's Customs and Excise under any Act relating to the Customs or to the export of prohibited goods.

Dated the 1st day of June, 1931.

(Signed) H. FOUNTAIN,
An Assistant Secretary
to the Board of Trade.

ANNEX F.



No.

EXPORT LICENCE.

This class of Licence is granted only for the export of war material to such foreign Governments (or their accredited agents) as are recognised by His Majesty's Government with the exception of the Governments of countries to which the supply of war material is precluded by Treaty.

In pursuance of the powers conferred upon them by the several Proclamations and Orders prohibiting the Exportation of certain articles from the United Kingdom, the Board of Trade do hereby authorise and permit

to export from any port in the United Kingdom to

consigned to

(hereinafter referred to as the consignee)

the following goods, namely,

upon the following conditions:—

(1) That the said goods are delivered to the consignee at the destination named in this Licence, and that the Owner or Shipper of the said goods, if so required by the Commissioners of His Majesty's Customs and Excise, shall produce to them, within such time as they may allow, proof to their satisfaction that the said goods were so delivered.

(2) That this Licence shall be deemed void and of no effect in the event of non-compliance with condition (1) as set out above and as accepted by the applicant in his application for this Licence.

(3) That this Licence may be modified or revoked at any time by the Board of Trade if they deem it necessary to do so (a) in the interests of Imperial security; or (b) in consequence of any international agreement to which His Majesty's Government are or may become a party.

Dated the

day of

, 19

NOTE.—The Board of Customs and Excise require pre-entry (i.e. entry and clearance before shipment) of all export prohibited goods.

An Assistant Secretary to the
Board of Trade.

NOTE.—If any alteration is desired in this Licence it must be returned with a request for amendment. No unauthorised alteration is permissible.

ANNEX G.



No.

EXPORT LICENCE.

In pursuance of the powers conferred upon them by the several Proclamations and Orders prohibiting the Exportation of certain articles from the United Kingdom, the Board of Trade do hereby authorise and permit

to export from any port in the United Kingdom within a period of three months from the date of this Licence, to

consigned to

the following goods, namely,

Exporters are warned that there are restrictions on the importation of certain goods into some countries and the issue of this Export Licence does not relieve the consignee from complying with the regulations (if any) in force in the country of destination.

upon the following conditions:—

(1) That the Owner or Shipper of the said goods, if so required by the Commissioners of His Majesty's Customs and Excise, shall produce to them, within such time as they may allow, proof to their satisfaction that the said goods were duly delivered at the destination named in this Licence.

(2) That this Licence shall be deemed void and of no effect in the event of non-compliance with condition (1) as set out above and as accepted by the applicant in his application for this Licence.

(3) That this Licence may be modified or revoked at any time by the Board of Trade without reason given.

Dated the day of , 19 .

NOTE.—The Board of Customs and Excise require pre-entry (i.e. entry and clearance before shipment) of all export prohibited goods.

An Assistant Secretary to the
Board of Trade.

NOTE.—If any alteration is desired in this Licence it must be returned with a request for amendment. No unauthorised alteration is permissible.

ANNEX H.

STATEMENT showing the total number of arms export licences (including licences for industrial purposes and sporting arms) issued in each of the following years:—

Year.	No. of licences.
1929	12,598
1930	11,314
1931	10,992
1932	10,897
1933	10,539
1934	10,485
1935, to 30th September	8,289

STATEMENT showing the number of licences included in the above statement which were issued for the export of war material, and the number of applications for licences for the export of war material which were refused in each of the following years:—

Year.	No. of licences. Issued.	Refused.
1929	325	5
1930	411	3
1931	435	1
1932	410	3
1933	413	—
1934	413	7
1935, to 30th September	309	7

ANNEX I.

EXPORT BY THE TRADE OF AIRCRAFT AND AERO ENGINES.

1. The primary concern of the Air Ministry in dealing with exports of aircraft and aero engines is to balance the advantages to the industry and to national defence of a healthy export trade against the necessity of retaining the advantage of whatever lead British research and inventive genius give us over other nations.

2. No individual licence is required for the export of unarmed aircraft and aero engines, except in the single case (until recently) of Ethiopia. To ensure that exports are not made which would be contrary to public policy an agreement has been made with the industry which ensures that the firms notify the Air Ministry whenever a foreign order is in contemplation. Owing to the good relations that exist between the Department and the industry and also by reason of the fact that in the main the firms depend on Air Ministry orders for their livelihood, and that in an extreme case the powers of the Official Secrets Acts might be invoked, the firms invariably conform with the wishes of the Air Ministry in their dealings with foreign customers, notwithstanding that the licensing system does not apply (except to the extent stated) to unarmed aircraft and engines. For example, in the later stages of the Chaco war, the firms loyally observed the request of the Air Ministry not to supply aircraft to Bolivia and Paraguay.

3. In order to assist the firms in gauging beforehand what aircraft or engines are likely to receive approval for export, and at the same time to indicate to the Press what degree of publicity is permissible, a system has been devised whereby aircraft and engines are assigned to three categories, Secret, Part Publication and Open. Aircraft and engines on the Secret List are not allowed to be described or even mentioned; those on the Part Publication list may be described in general outline, although not in detail, and firms are permitted to make tentative approaches to foreign powers regarding the sale of these aircraft and engines abroad. Those on the Open List can, in general, be freely sold

abroad but the prior consent of the Air Ministry is required for the sale of manufacturing rights for their construction in foreign countries.

4. The principles governing the transfer from one list to another are as follows:—

AIRCRAFT.—The Secret stage lasts until the aircraft makes its first flight, the Part Publication stage until the first production order is given by the Royal Air Force, or until the Department indicates that it has no further interest in the type.

ENGINES.—The Secret stage lasts until the engine has appeared in public (in an aircraft or otherwise) or has passed a full Service Type Test; the Part Publication stage until the engine is in production or is no longer of interest to the Service.

5. The lists are revised every quarter. They include aircraft and engines produced by firms on their own initiative ("Private Ventures") as well as those directly ordered by the Air Ministry.

6. When an application for concurrence in a possible foreign order reaches the Air Ministry, it is considered from the following points of view:—

(a) Secrecy and effect on our retaining a lead in new types.

(b) Effect on production orders for the Department—orders are only allowed to be accepted provided the needs of the Royal Air Force are not prejudiced.

(c) International situation and any embargoes which may be in force or in contemplation.

In accordance with these considerations the firm is informed that it may or may not accept the order, or that it may accept it subject to restrictions as regards the date of delivery or on such other conditions as may seem necessary. This system has worked admirably so far, and so long as the firms engaged in the production of military aircraft and engines look to the Air Ministry as their primary market, it provides a complete and flexible system for ensuring any desired degree of control.

APPENDIX II

MEMORANDUM SUBMITTED BY THE ADMIRALTY
CONSTRUCTION AND EXPORT OF WARSHIPS

1. The construction of warships in this country by private firms is subject to certain restrictions of which the most important are contained in two Acts of Parliament.

FOREIGN ENLISTMENT ACT.

2. Section 8 of the Foreign Enlistment Act, 1870, provides, in effect, that any ship destined for naval or military service, building or built in this country for delivery to a State which has become a belligerent in a war in which this country is neutral, shall be interned pending the conclusion of hostilities. By Section 21 of the Act, the power to seize or detain such a ship is vested in naval or military officers on full pay, and customs officers, and in practice the power would normally be exercised by the latter refusing clearance to the ship. Continuous watch is maintained by Admiralty Overseers in the various shipbuilding centres, and by customs officers throughout the country, on any work connected with naval construction, and there is a regular exchange of information between the two Departments. No difficulty, therefore, should occur, upon the Foreign Enlistment Act becoming operative, in preventing the despatch abroad of any vessels in contravention of Section 8. The information thus collected and exchanged between the Departments concerned would similarly be used to prevent a breach of Section 10 of the Act which forbids any increase of the armament or equipment of a belligerent ship visiting this country, or of Section 11 of the Act, which prohibits the fitting out of any naval or military expeditions against the territory of any belligerent in a war in which this country is neutral.

TREATIES OF WASHINGTON ACT.

3. The Treaties of Washington Act, 1922, was passed in order to ensure that private firms in this country observe the provisions of the Treaty of Washington which limit the displacement and armament of ships. Section 1 of the Act renders the construction of any warship, or the adaptation of any ship for use as a vessel of war, subject to the licence of the Admiralty, and the delivery of any such vessel is also prohibited without a similar licence. It is clearly provided in the Act, however, that the purpose of this licensing system is merely to ensure that the firms comply with the provisions of the Treaty.

4. Article 16 of the Treaty of Washington lays it down that if the construction of any vessel of war for a non-contracting power is undertaken within the jurisdiction of any of the contracting parties, such power shall promptly inform the other contracting parties of the date of the signing of the contract and the date on which the keel of the ship is laid, and shall also communicate to them the following particulars relating to the ship, namely:—

The standard displacement in tons and metric tons of each new ship to be laid down and the principal dimensions, namely:—

Length at waterline:

Extreme beam at or below waterline:

Mean draught at standard displacement.

The date of completion of each new ship and its standard displacement in tons and metric tons, and the principal dimensions, namely:—

Length at waterline:

Extreme beam at or below waterline:

Mean draught at standard displacement at time of completion.

5. The licensing system is administered by the Admiralty as follows:—

Upon the signature of a contract for the construction of a vessel of war or the adaptation of

a ship for use as a vessel of war, the firm in question is required to submit an application for a licence, giving the principal dimensions of the proposed vessel. A specimen form of application is attached: see Annex I.

6. The particulars thus furnished enable the Admiralty to decide whether a licence may properly be issued. It is a condition of the licence for the construction of a vessel of war for a non-contracting power that the firm shall supply at the earliest possible date the information prescribed by the Treaty for communication (through the Foreign Office) to the other signatory powers to the Washington Treaty (see Condition I, (1)-(3) of Annex I).

7. The firm is also required to supply the Admiralty with drawings showing the general arrangement of the ship (or the work to be done) for the information of the Admiralty Overseer responsible for the inspection.

8. A copy of each licence is sent to the Board of Customs and Excise for information.

9. The application for licence to deliver—see Annex II—is forwarded to the Admiralty through the Overseer, and the granting of the licence is conditional upon his giving a certificate that the work has been carried out generally in conformity with the general arrangement drawings.

10. It has not been found necessary to attach any special conditions to a delivery licence. Condition I (4) of the building licence requires the firm to supply on completion of the vessel the date of its completion and its principal dimensions at the time of completion for communication to the Signatory Powers. Steps are taken to ensure that this condition is complied with and the information given by the firm on completion of the work is supplied to the Foreign Office for communication to the signatory powers.

11. A copy of each application to deliver is supplied to the Board of Customs and Excise for information.

12. When the construction is to the order of the Admiralty itself, the firms are granted licences to build and deliver without prior application.

13. It may also be mentioned that Article 18 of the Washington Treaty imposes a restriction on the disposal of war vessels which does not involve legislation. The signatory powers bound themselves not to dispose, by gift, sale or any mode of transfer, of any vessel of war in such a manner that it might become a vessel of war in the navy of any foreign power. In pursuance of this obligation, it has been the practice of the Admiralty to sell for demolition by recognised ship breakers. Exceptionally when any obsolete or surplus vessels have been sold, after demilitarisation, for further use, the purchaser has been required to give a substantial bond that the vessel will remain under the British Flag and will not be re-sold without the consent of the Admiralty.

LONDON NAVAL TREATY ACT.

14. Just as the Treaties of Washington Act was passed to give effect in this country to the provisions of the Treaty of Washington, so the London Naval Treaty Act, 1930, is intended to enforce in this country the provisions of the London Naval Treaty. The clauses of that Treaty which chiefly affect construction of ships by private firms in this country, namely, clause 2 of Article 4, which limits the size and armament of Aircraft Carriers, and

clause 4 of Article 7, dealing with Submarines, only take effect as from the coming into force of the Treaty in respect of all the high contracting parties. France and Italy, two of the high contracting parties, have not ratified the Treaty: consequently these clauses are not in force, and the practical effect of the London Naval Treaty Act in this connection is negligible.

ANNEX I.

TREATIES OF WASHINGTON ACT, 1922.

APPLICATION FOR LICENCE TO:—

- (a) Build a vessel of war,
- (b) Alter, arm or equip any ship so as to adapt her for use as a vessel of war.

To be forwarded in duplicate by the Firm making application; one copy will be retained at the Admiralty whilst the other will be returned to Firm in due course.

Applicants are required to provide such facilities as may be desired by the Admiralty either at their offices and works or at Admiralty offices for the examination of the designs and particulars of the vessel in regard to which this application is made.

Any licence which may be granted will not permit or condone any breach by the Licensee or by any servant or agent of the Licensee of any provision of the Foreign Enlistment Act, 1870.

Whereas by section 1 sub-section (i) (a) of the Treaties of Washington Act, 1922, it is enacted as follows:—

- 1.—(1) No person shall, without a licence from the Admiralty:—

- (a) Within any part of His Majesty's Dominions to which this Act applies, build any vessel of war, or alter, arm or equip any ship so as to adapt her for use as a vessel of war;

And whereas by sub-section (2) of the same section it is enacted that:—

- (2) An application for a licence under this section shall be accompanied by such designs and particulars as the Admiralty may require.

Now application is hereby made by

.....
for a licence to
at

The principal dimensions of the proposed vessel (being such principal dimensions as are referred to in Part 3 Section 1 of First Schedule to the Act) are as stated on attached sheet, and the Yard number for her will be

The following undertakings are hereby given with the intention that they shall become binding on the granting of the licence:—

- (1) To supply, for the examination and retention of such Inspecting Officers as the Admiralty may appoint, all such designs and particulars as those Officers may from time to time require to satisfy themselves that the obligations enumerated in the First Schedule to the Act will be observed.

- (2) During the construction and on completion of the vessel, to afford all necessary facilities for the purposes of such inspection as the Admiralty may consider necessary.

- (3) That the obligations above mentioned will be fully observed and that the granting of a licence by the Admiralty will not be regarded as waiving or dispensing with their full observance or as prejudicing any subsequent action by the Admiralty under the Act.

Signature of Applicant

Stamp or Seal

Date

To the Secretary of the Admiralty.

LICENCE GRANTED IN ACCORDANCE WITH THE ABOVE WRITTEN APPLICATION.

.....
of
are hereby authorised to proceed with the work above mentioned on vessel No. on the undertakings given in the application and on the conditions hereinafter mentioned.

This Licence has no force or effect if any action thereunder shall be or become a breach by the Licensee or by any servant or agent of the Licensee of any provision of the Foreign Enlistment Act, 1870.

By Command of Their Lordships.

Secretary of the Admiralty.

Date

THE CONDITIONS that appear necessary to the Admiralty for the purpose of securing the observance of the obligations imposed by the Treaty for the Limitation of Naval Armament are:—

1. The following particulars as at (1), (2) and (3) are to be supplied to the Admiralty at the earliest possible date, and as at (4) on completion of the vessel, for communication to the other Powers signatory to the Treaty for the Limitation of Naval Armament, namely:—

- (1) The date of the signing of the contract.

- (2) The date on which the keel is laid.

- (3) The standard displacement in tons and metric tons and the principal dimensions, namely, length at waterline, extreme beam at or below waterline, mean draught at standard displacement.

- (4) The date of completion of the vessel and its standard displacement in tons and metric tons and the principal dimensions, namely, length at waterline, extreme beam at or below waterline, mean draught at standard displacement, at time of completion.

2.

Secretary of the Admiralty.

Date

ANNEX II.

TREATIES OF WASHINGTON ACT, 1922.

APPLICATION FOR LICENCE to despatch or deliver, or allow to be despatched or delivered, from any place within any part of His Majesty's Dominions to which this Act applies a ship which has been built, altered, armed or equipped as a vessel of war either entirely or partly within His Majesty's Dominions.

To be forwarded in duplicate by the Firm making application; one copy will be retained at the Admiralty whilst the other will be returned to Firm in due course.

Any licence which may be granted will not permit or condone any breach by the Licensee or by any servant or agent of the Licensee of any provision of the Foreign Enlistment Act, 1870.

Whereas by section 1 sub-section (1) (a) and (b) of the Treaties of Washington Act, 1922, it is enacted as follows:—

1. (1) No person shall, without a licence from the Admiralty:—

- (a) within any part of His Majesty's Dominions to which this Act applies, build any vessel of war, or alter, arm or equip any ship so as to adapt her for use as a vessel of war;

- (b) despatch or deliver, or allow to be despatched or delivered, from any place within any part of His Majesty's Dominions to which this Act applies any ship which has been so built, altered, armed or equipped as aforesaid

either entirely or partly within His Majesty's
Dominions:

Now application is hereby made for a Licence to

{	despatch	}
{	deliver	}
{	allow to be despatched	}
{	allow to be delivered	}

from to

at.....vessel No.....

{	built as	}
{	on which	}
{	has been carried out	}
{	the work	}

licensed by the Admiralty by licence dated.....

Signature of Applicant

Stamp or Seal

Date

To the Secretary of the Admiralty.

LICENCE GRANTED IN ACCORDANCE WITH THE ABOVE
WRITTEN APPLICATION.

..... of

are hereby authorised to

{	despatch	}
{	deliver	}
{	allow to be despatched	}
{	allow to be delivered	}

vessel No.....

from..... to.....

at.....on the conditions hereinafter
mentioned.

This Licence has no force or effect if any action thereunder shall be or become a breach by the Licensee or by any servant or agent of the Licensee of any provision of the Foreign Enlistment Act, 1870.

By Command of Their Lordships.

Secretary of the Admiralty.

Date

THE CONDITIONS that appear necessary to the Admiralty for the purpose of securing the observance of the obligations imposed by the Treaty for the Limitation of Naval Armament are:—

1.—

2.—

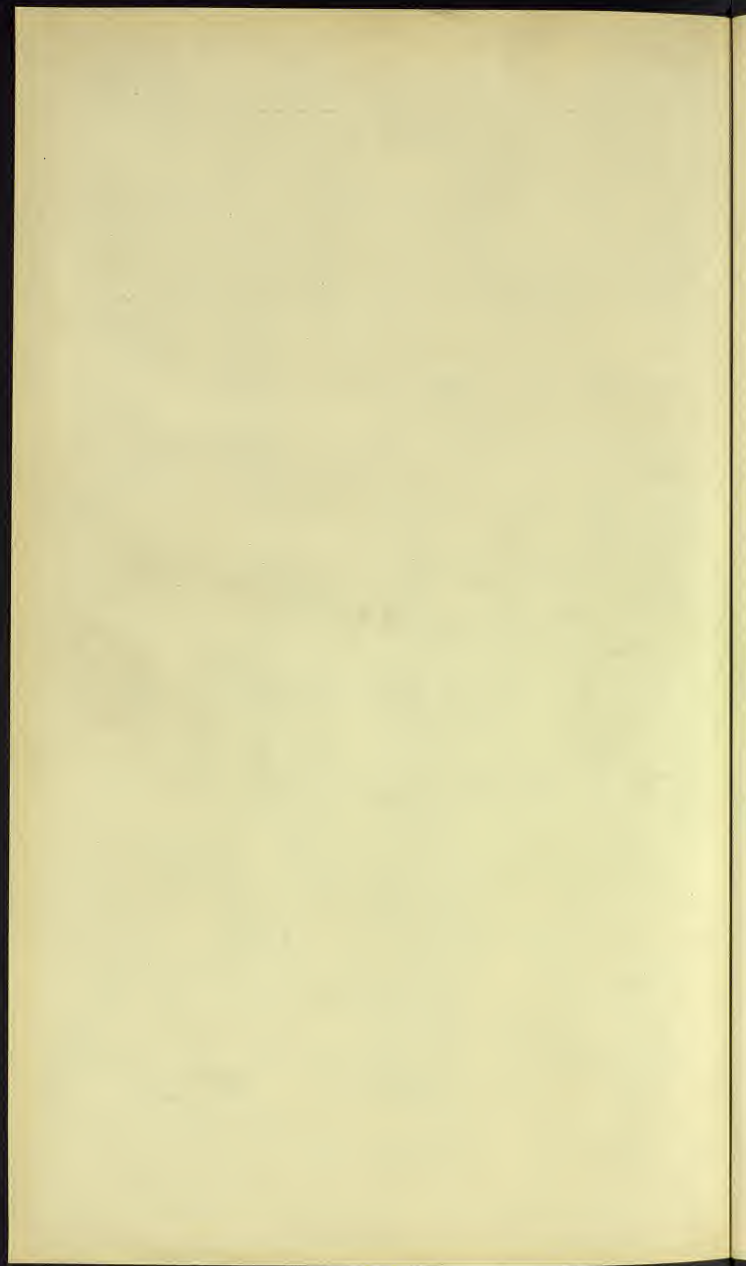
Secretary of the Admiralty.

Date

APPENDIX III

NOTES ON CATEGORIES OF PROHIBITED GOODS IN THE ARMS EXPORT PROHIBITION ORDER, 1931.

Category.	Whether war material.	Whether included in any Open General Licence.
(i) Cannon and other ordnance and component parts thereof.	All war material	No.
(ii) Carriages and mountings and accessories for mountings for cannon and other ordnance and component parts thereof.	All war material	No.
(iii) Cartridges, charges of all kinds, and component parts thereof.	Partly war material	Ammunition for smooth bore shot-guns (but not their components) is covered by Open General Licence (G.L.111). Ammunition on personal firearm certificates may also be covered by G.L.112.
(iv) Explosives of every description.	Partly war material	Specified brands of industrial explosives and smokeless gun-powder for shotgun cartridges covered by G.L.111.
(v) Firearms of every description and component parts thereof.	Partly war material	Smooth bore shotguns (but not component parts) covered by G.L.111. Personal firearms on a firearm certificate, issued by the Police, covered by G.L.112.
(vi) Grenades and component parts thereof	All war material	No.
(vii) Machine guns, interrupter gears, mountings for machine guns and component parts thereof.	All war material	No.
(viii) Projectiles of all kinds (except air-gun pellets) and component parts thereof.	Partly war material	No.
(ix) Mines, land or sea, and component parts thereof.	All war material	No.
(x) Depth charges, apparatus for the discharge of depth charges, and component parts thereof.	All war material	No.
(xi) Bombs, bombing apparatus and component parts thereof.	All war material	No.
(xii) Flame-throwers and component parts thereof.	Licences would not be issued for war material, but licences have been issued for similar appliances for destroying locusts and other pests.	
(xiii) Fuses and component parts thereof	Partly war material	No.
(xiv) Torpedoes and component parts thereof	All war material	No.
(xv) Torpedo tubes, or other apparatus for discharging torpedoes.	All war material	No.
(xvi) Fire control and gun sighting apparatus and component parts thereof.	All war material	No.
(xvii) Appliances for use with arms and apparatus exclusively designed and intended for land, sea or aerial warfare.	All war material. (The interpretation of this has been appliances for use with arms and appliances for use with apparatus. It covers such items as :— (1) Belt filling machines (i.e. machines for filling rapidly machine gun belts). (2) Rounds counter gear. (i.e. an apparatus fitted to machine guns to register the number of rounds fired). (3) Artillery and infantry range-finders. (4) Periscopes. (5) Depth and roll recorders for torpedoes.	No.
(xviii) Bayonets, swords and lances, and component parts thereof.	Partly war material, but bayonets are not usually exported apart from rifles, and swords and lances are not modern weapons of war.	Export covered by Open General Licence, G.L.110.
(xix) Tanks and armoured cars and component parts thereof.	All war material	No.
(xx) Aircraft, assembled or dismantled, and aircraft engines.	Aircraft without armament or appliances and apparatus for use with arms are not regarded as war material.	Export of aircraft covered by Open General Licence G.L.110, but a specific licence would be required for armament including armament fittings such as bomb racks, interrupter gear and torpedo release gear.



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

13 & 14

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

THIRTEENTH DAY

WEDNESDAY, 8TH JANUARY, 1936

FOURTEENTH DAY

THURSDAY, 9TH JANUARY, 1936

WITNESSES—

On behalf of Messrs. VICKERS Limited and Associated Companies:—

General The Honourable Sir HERBERT A. LAWRENCE, G.C.B.

Commander Sir CHARLES W. CRAVEN, O.B.E., R.N. (retired)

Mr. F. C. YAPP

Mr. J. REID YOUNG, C.A.

Sir ROBERT MCLEAN

Mr. A. DUNBAR

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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1936

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

THIRTEENTH DAY

Wednesday, 8th January, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

General The Honourable Sir HERBERT A. LAWRENCE, G.C.B., Commander Sir CHARLES W. CRAVEN, O.B.E., R.N. (retired), Mr. F. C. YAPP, Mr. J. REID YOUNG, C.A., Sir ROBERT MCLEAN and Mr. A. DUNBAR; representing Messrs. Vickers Limited and Associated Companies: called and examined.

1842. *Chairman*: We have met to consider the evidence submitted on behalf of Messrs. Vickers Limited and their associated companies, including the English Steel Corporation. With regard to the English Steel Corporation, they submitted a statement* which is now in print and will be handed to the Press and become part of our record. It consists mainly of a challenge of the accuracy of the statement made on behalf of the Union of Democratic Control with reference to a number of technical details. With regard to that, if it becomes material for the Commission to form a judgment upon those particular matters, they will feel it necessary to call in some independent expert advice to deal with those technical questions when the time arrives. The statement of the English Steel Corporation will not be gone into to-day any further than I have indicated; it will not be necessary to call witnesses upon that, but if it becomes necessary we shall take independent expert advice.

Then, with regard to the evidence submitted on behalf of Messrs. Vickers Limited and their associated companies, I propose, in the first instance, to read some correspondence which passed between Sir Herbert Lawrence, the Chairman, and the Commission, as indicating the lines upon which their evidence has been prepared and the information with which we asked them to supply us. The first letter is a letter which was written by the Chairman of Vickers Limited to me as Chairman of the Commission very soon after the Commission was appointed and it is in these terms:

Vickers Limited,
Vickers House,
Broadway,
Westminster, S.W.1.
20th February, 1935.

SIR,

As Chairman of Vickers Limited and Vickers-Armstrongs Limited, I beg to put at the disposal of the Royal Commission such information as you may require for the purposes of your enquiry. Should you or the members of the Commission desire to visit our works at Barrow, Newcastle, Sheffield, Manchester, Crayford, Southampton and Weybridge, we shall gladly make all necessary arrangements.

I have the honour to be,

Sir,

Your obedient Servant,

(Sgd.) H. A. LAWRENCE.

The Rt. Hon. Sir John Eldon Bankes, P.C., G.C.B.,
Royal Commission into the Traffic in Arms,
2, Whitehall Gardens,
S.W.1.

* Appendix 10, p. 413.

In reply to that, after considering the matter, the Commission submitted a questionnaire to Messrs. Vickers, and that was in this form. It is a letter written by our Secretary.

ROYAL COMMISSION ON THE PRIVATE
MANUFACTURE OF AND TRADING IN ARMS
8, Buckingham Gate, S.W.1.
23rd April, 1935.

SIR,

With reference to your letter of the 20th February last, addressed to Sir John Bankes, I am directed by the Royal Commission on the Private Manufacture of and Trading in Arms to request that they may be furnished for the purposes of their Inquiry with full information under the following headings, relative to Messrs. Vickers Ltd. and Messrs. Vickers-Armstrongs Ltd. and any subsidiary companies under their control:—

1. The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.
2. The proportion of the turnover in each of the last five years, representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire and (c) foreign, orders.
3. The estimated value of plant employed in the production of arms and munitions of war that would be rendered redundant in the event of the establishment of a State monopoly.
4. The amount of declared profits of each of the last five years; and an estimate of the proportion thereof attributable to the production of arms and munitions of war.

(The above to be accompanied by published accounts for the five years.)

5. The average number of employees engaged in each of the last five years on the production of arms and munitions of war, and other products, respectively.

6. The firm's capacity for expansion for purposes of the production of arms and munitions of war (a) with, (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war?

7. Particulars of any agreements with other firms engaged in the production of arms and munitions of war stating the names of the parties, British and foreign, to such agreements.

8 January, 1936.]

General The Hon. Sir HERBERT A. LAWRENCE, G.C.B., [Continued.
 Commander Sir CHARLES W. CRAVEN, O.B.E., R.N., Mr. F. C. YAPP, Mr. J. REID YOUNG, C.A.,
 Sir ROBERT McLEAN and Mr. A. DUNBAR.

8. Details of the firm's present holdings of the capital of other firms, giving names (British and foreign), and of the holdings of the firm's capital by other firms, giving names (British and foreign).

9. The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

The phrase "arms and munitions of war" should be interpreted for the present purpose as including (a) all the articles enumerated under headings (i) to (xx) of Article (1) of the Arms Export Prohibition Order, 1931 (S.R. & O., 1931, No. 413), and (b) vessels of war of all kinds, together with arms, ammunition and implements of war mounted on board vessels of war and forming part of their normal equipment. A copy of the Order-in-Council is enclosed for convenience of reference.

I am at the same time to request that you will nominate a representative or representatives to appear before the Royal Commission for the purpose of giving oral evidence.

I am to add that a further communication will be addressed to you in the event of the Royal Commission desiring evidence in regard to other matters that may arise in the course of their inquiry.

I am, Sir,
 Your obedient Servant,
 (Sgd.) E. TWENTYMAN.

General Sir Herbert A. Lawrence, G.C.B.,
 Chairman,

Messrs. Vickers Ltd.,

Messrs. Vickers-Armstrongs Ltd.,
 Vickers House,
 Broadway, S.W.1.

That letter was replied to in these terms:

The Secretary,
 The Royal Commission on the Private Manufacture of and Trading in Arms,
 8, Buckingham Gate,
 S.W.1.
 21st October, 1935.

Sir,

In reply to your letters of the 22nd February* and 23rd April, 1935, I beg to forward herewith:—

1.—(a) A general statement on armament manufacture by a private firm, coupled with
 (b) A short history of Vickers Limited and its various activities at home and abroad.

On this paper I shall be glad to appear before the Royal Commission and to answer any questions on the Company's policy.

2. A more elaborate statement on the organisation and activities of Vickers-Armstrongs Limited which is our main Armament Company.

3. Replies to the questionnaire with relative memoranda.

On (2) and (3), I suggest that my Colleagues, Commander Sir Charles Craven, Mr. F. C. Yapp and Mr. J. Reid Young should be called.

Sir Charles Craven is the Managing Director in charge of the works and shipyards of Vickers-Armstrongs Limited and its subsidiaries. Mr. F. C. Yapp is a Director of Vickers-Armstrongs Limited and jointly with Sir Charles Craven is responsible for all British and foreign contracts. Mr. Yapp is particularly responsible for the appointment and supervision of all agents and representatives. Mr. Reid Young is Secretary and Chief Accountant of Vickers Limited and Vickers-Armstrongs Limited.

In regard to the questionnaire and the replies thereto, every endeavour has been made to deal as fully as practicable in a concise form with the various questions, but in certain instances which

are referred to specifically in Statement No. 3, it has not been possible to deal fully with the questions as framed and in this connection I have to refer to the interview which Mr. F. C. Yapp and Mr. Reid Young had with the Secretary to the Commission on the 29th April, 1935, at which certain of the difficulties were explained. I wish to say, however, that if any amplification of the information given is desired every effort will be made to meet the wishes of the Commission.

The Commission will understand that certain of the information contained in the answers to the questions is of a confidential nature from three points of view:—

- (a) As affecting national security.
- (b) As affecting the Company's interests.
- (c) As affecting the interests of the parties to the agreements of which details are given in the answer to the questionnaire.

I respectfully submit that the reply to Question 4 should not be made public in the detailed form in which it is presented but that the published information should be limited to a statement of total profit figures as relating to the armament companies of the Vickers Group. A statement—Appendix 4c—has been prepared which it is suggested might be used, if it meets with the approval of the Commission.

It will be appreciated by the Commission that the reply to the first part of Question 6 divulges the wartime capacity of the Company expressed in man-power and I submit that this information should be considered as absolutely secret to the members of the Royal Commission.

With regard to the reply to Question 7, it will be clear to the Commission that many of the Agreements, particularly those in connection with the Steel Industry, are not connected with armaments, and are hardly relative to the scope of the inquiry now being conducted. It would be unfortunate if these agreements were to be made public, as there would be every possibility of their publication affecting the trade of a great industry and particularly the foreign business.

It will be seen that in Appendix 8, which contains the information asked for in Question 8, are given details of all the Investments of Vickers Limited and of the other Companies in the Group.

A large number of these Investments is in Companies in no way connected with the Armaments Industry and are Investments held in the ordinary way of business by the Companies concerned. It is thought that the only Investments which would prove of interest to the Commission are those which are, or might be, indirectly connected with the Armaments Industry and that the others are in no way relevant to the Commission's Inquiry.

No doubt the Commission will understand that the publication of a complete list of the Investments of the Companies in the Group may be prejudicial to the affairs of the Company, and it is felt that it is only proper, as safeguarding the interests of the Shareholders, that a request should be made to the Commission that details of Investments other than those connected with the subject of the Inquiry, are not made public.

In order to guide the Commission the Appendix has been sub-divided to show:—

In Part 1—Investments in Companies in the Vickers Group (whether or not connected with the Armament Industry) and others, which, to the best of our knowledge are engaged in, or indirectly connected with the businesses of armament manufacture, steel manufacture and ship-building, and

In Part 2—Other Investments.

It is not my Company's desire to prevent the publication of anything arising from the Agreements which have already been made public by the United States Special Committee, and in fact, 1

* Acknowledgement of letter of 20th February.

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welcome a full investigation into these Agreements and the fullest publicity regarding them.

I wish to make it clear that in making the above submissions, my Company raises no objection to any information given in reply to the questionnaire being made available to the Defence Departments of the country.

If at a later date it is decided to ask me for further information, I shall be only too pleased to place myself at the disposal of the Royal Commission.

I have the honour to be,

Sir,

Your obedient Servant,

For VICKERS Limited.

(Sgd.) H. A. LAWRENCE,
 Chairman.

Now, I have read that correspondence for two reasons. First, because we indicated at the commencement of our sittings that, as far as possible, we should conduct this inquiry in public. But, of course, it was obvious that on certain points it might be necessary to decide that it was reasonable that a certain amount of the information given to us might be treated as confidential and not made public. As a result of our questionnaire, a very full answer has been given to all our inquiries by Messrs. Vickers and they have indicated in the letter the desire that a certain amount of that information should be treated as confidential. That seems to us to be a reasonable request. The full information is contained in this very voluminous document. It is divided into parts which will be dealt with publicly and parts which will be dealt with in private.

Having made that preliminary statement, I will ask Sir Herbert Lawrence, if he would, to come as the first witness and I will ask him also if he would either read, or have read for him, Statement No. 1, which is in print; and then after that, if he wishes—as I believe he does wish—to supplement that by a further statement. Then will follow any questions which the Commission desire to put to him before we proceed to take the evidence of the other witnesses.

In the ordinary course, we have given to the Press information as to the position of the witness and I have here a statement which I will read in order that it may become part of the record: General The Honourable Sir Herbert A. Lawrence, G.C.B., served South Africa, 1899-1902; Dardanelles, 1915; Egypt, 1916; Chief of Staff, Headquarters, British Armies in France, 1918-1919; Member, Royal Commission on Coal Industry, 1925; Governor of Wellington College; Hon. LL.D. St. Andrew's University; Hon. D.C.L. Oxford University; Awarded various French, Belgian, American, Roumanian and Japanese Orders; Managing Partner of Glyn, Mills & Co., Chairman, Vickers Limited since 1926; Vickers-Armstrongs Limited 1928-1935; Director: Bank of Roumania (Chairman); Dalgety & Co., Limited, London (Midland and Scottish Railway; Ottoman Bank (Chairman of London Committee); Sun Insurance Office Limited; Sun Life Assurance Society.

Sir Herbert, will you read Statement No. 1 yourself, or would you desire to have it read for you?

Sir Herbert Lawrence: I will read it, if you please, Sir.

1843. Chairman: Yes.

Sir Herbert Lawrence: (reading)

STATEMENT No. 1

A. GENERAL STATEMENT ON ARMAMENT MANUFACTURE BY A PRIVATE FIRM.

The question of the manufacture of arms by the State or by private firms has been obscured by a certain amount of prejudice and accusations of corrupt practice, and by a very imperfect understanding of what is comprised in the term "armaments." It is impossible to reply to such accusations in the absence of categorical statements. Such statements as I have seen have been largely distortions of facts which bear a simple explanation. The prejudice is the expression of an honourable but perhaps mistaken ideal respecting the sanctity of life and the iniquity of war, which must command sympathy.

I have to deal with the question of the advantage or disadvantage to the State of private manufacture of armaments and to assume that armaments are required by the modern state under present conditions. Assuming that armaments are required, it is clear that they must be modern, and in a mechanical age, thoroughly up-to-date. In order to ensure this, if the manufacture of arms is to be a function of the State, the State will have to keep large plants in being without having the advantage of supplying an export trade or of engaging in commercial activities. In order to be in a position to pass rapidly from a peace time to a war time production, it will have to manufacture on a scale far higher than is normally required. After a prolonged peace, most of its production would be obsolete.

State manufacture is traditionally unenterprising and there will always be a tendency to be satisfied with conditions which may be expected to "last my time." In private manufacture there is the restless activity which derives from competition, and from the fear of being left behind in the race for employment. This may be exemplified by the fact that until the latter half of last century this country alone was armed with smooth bore, muzzle loading guns.

1844. Chairman: May I interrupt? Was it this country only that was armed?

Sir Herbert Lawrence: What I meant to imply was that while other countries were armed with the breech loading gun, this country was not so armed. (reading)

It was the genius of Sir A. Noble and his staff at Elswick which drove the Government to equip the Army with rifled ordnance and breech loading mechanism, after they had supplied numerous foreign countries. The State has the right to acquire any patented new invention which may be developed by the enterprises of private firms, a right which is of first class importance. Research work is going on continuously in the factories of the Vickers Group.

As an example, it is now realised that a new force has arisen which may be a determining factor in the war of the future—the aeroplane. One of the most important counter weapons for land purposes is the anti-aircraft gun. Vickers' technical staff have designed a gun which in competition with the gun manufacturers of the world has proved its pre-eminence. A demand from abroad has resulted in the development of a gun which is unrivalled. Our own Government, if it wishes, can get the full advantage of this development.

The Dockyards and Arsenals belonging to the State are no doubt very highly efficient but in the event of war they could not do much more than keep abreast of repair work as far as the Navy is concerned and would be inadequate for the mass production of guns and ammunition. The State can, as long as private firms exist, fall back on them to supplement their normal production. The Government could do what was done in the last war with the railways—viz., take over the whole business as a going concern, guarantee a reasonable dividend to shareholders, provide for depreciation and make an agreed payment for obsolescence when the factories were returned to private ownership. On the other hand, to acquire existing factories and operate them for the Government in peace time would entail a cost

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which is dealt with to some extent in the third paper placed before the Royal Commission.
 1845. *Chairman*: Just one moment. When you speak of "third paper" there you mean the third statement.*

Sir Herbert Lawrence: That is so. (reading)

I have remarked in the first paragraph of my statement that I think there has been a good deal of misunderstanding, certainly in the minds of the witnesses who have given evidence before the Commission, as to what is comprised in the term "armaments." Speaking from the point of view of my own Company, I wish to take this opportunity of impressing on the Commission that when we, that is Vickers-Armstrongs Limited, are considering the term "armaments," we do not think in terms of shells, which it is admitted are manufactures which could be undertaken by any mass production engineering concern equipped with suitable modern machine tools and with unskilled labour, but we think in terms of the more advanced and complicated type of armaments such as:—

Warships,
 Heavy guns, breech mechanisms and sights,
 Gun mountings and field carriages,
 Director firing gear and fire control appliances,
 Torpedoes and torpedo tubes,
 Fuses and cartridge cases.
 Automatic guns,
 and work of this nature.

So far as shells are concerned, the only type of this product which is, in the view of my Company's

experts, regarded as a specialised form of armament manufacture is the armour piercing shell. I lay stress on this point because from my reading of the evidence which has been given before the Commission by witnesses who refer to the matter it appears to me that it is correct to say that they are thinking in general terms of such products as shells and rifles. I desire to take this opportunity of impressing on the Commission the fact that my Company, while equipped to a certain extent to undertake the manufacture of these two last-mentioned items, do not attach any importance thereto from the point of view of armament manufacture in war time, but regard themselves as specialists, and highly equipped specialists, for the production of the more complicated and specialised forms of armaments referred to above. While stressing this point I have not lost sight of the fact that in forwarding the questionnaire the Commission appreciates the wide and in many directions highly specialised field covered by the general term "armament manufacture" and has, in fact, given a definition of what it regards as covered by that term.

1846. *Chairman*: That is the end of the first part of Statement No. 1. Now, do you wish one of your other witnesses to deal with the second part, or will you read it?

Sir Herbert Lawrence: With your permission, Sir, I will ask Mr. Reid Young to read the second paper.

Mr. Reid Young read portions of the following statement, as indicated by the Chairman. The remainder was taken as read:—

B. VICKERS GROUP—BRIEF HISTORICAL SURVEY.

The Company was registered on 17th April, 1867, as Vickers Sons & Company, Limited, with a capital of 1,550 shares of £100 each, to take over the business of Naylor Vickers & Company, Steel Makers and Manufacturers, of Sheffield.

The business of Naylor Vickers & Company was originally established in the latter part of the 18th century by Mr. George Naylor, who took into partnership in 1829 his son-in-law, Mr. Edward Vickers. The Company was engaged in heavy engineering and steel manufacture. In addition to producing tyres and crank axles for railways and general castings, the Company made gun forgings to Government orders. In 1888, the Government was desirous of increasing the nation's resources for the production of armaments and offered the Company an order of £250,000 with the prospect of more orders to follow if a gun-making plant were laid down. The Company thereupon entered into this important undertaking and the first gun successfully passed its trials in the same year.

Before 1888 Armour Plate was made of wrought iron with a steel face, but in that year Vickers produced an all-steel armour plate which was adopted by the Admiralty.

In 1897 the Works of the Naval Construction & Armaments Company Limited at Barrow-in-Furness were purchased, and in the same year an agreement was entered into whereby the Company acquired, as on the 1st October, 1896, the business of The Maxim Nordenfolt Guns and Ammunition Company Limited. Following this, on the 4th November, 1897, the name of the Company was changed to Vickers Sons & Maxim Limited, and on the 24th April, 1911, the name was again changed to its present title of Vickers Limited.

During the Great War the Company placed the whole of its resources at the disposal of the Government and made enormous extensions to its works and the works of its subsidiaries, in order to meet the requirements of the Government for delivery of

ships, armaments and war material. On cessation of hostilities, the Company and its subsidiaries were left with these large Works and a very comprehensive programme was entered into to endeavour to find classes of manufacture to meet the reduced peace-time call for armaments and to keep the Works fully engaged. This peace-time programme was naturally very extensive and, unfortunately, in a number of cases, far from successful. In 1926 it became necessary, in view of the losses sustained in an endeavour to find commercial engineering work and the reduced earning power resulting from the post-war conditions, to write down the assets of the Company to a figure which could be regarded as their proper value and to provide for contingent and other liabilities of the Company. The amount required for this was £12,442,366 6s. and was provided as follows:—

	£	s.	d.
By writing off two-thirds of the issued Ordinary Share Capital	8,210,322	0	0
By appropriating out of Reserve Fund an amount of ...	3,600,000	0	0
By appropriations from Profit and Loss Account ...	632,044	6	0
	£12,442,366	6	0

About the year 1918 Vickers Limited became very largely interested in electrical work and had considered the desirability of erecting large works to cope with this class of business. At this time, however, an opportunity arose to become associated with Metropolitan Carriage Wagon & Finance Company Limited, a Company primarily engaged in the manufacture of Railway Rolling Stock. The two Companies had very large interests in the British Westinghouse Electric & Manufacturing Company Limited, and other electrical engineering undertakings and it was considered it would be desirable to amalgamate the interests of both under one control on account of the community of interest in the electrical industry, and by reason of the fact

* See p. 374.

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that the alliance with Vickers of the Rolling Stock business would be of advantage. As a result, Vickers Limited acquired the whole of the Preference Shares and 99.99 per cent. of the Ordinary Shares of the Metropolitan Company for Shares in its own capital and for cash.

The Company, in 1927, agreed to the fusion with Sir W. G. Armstrong Whitworth & Company Limited (now called Armstrong Whitworth Securities Company, Limited) of the armament, main ship-building and certain commercial interests of the two Companies, and transferred to a new Company, formed for that purpose on the 31st December, 1927, under the style of Vickers-Armstrongs Limited for Shares, its works at Sheffield, Barrow, Erith and Dartford, the ranges at Eskmeals, Swanley and Eynsford, and the Experimental Tank at St. Albans, together with its interest and holdings of shares in a number of Companies engaged in shipbuilding, the manufacture of armaments, steel, etc.

Later, an agreement was entered into between Vickers Limited, Vickers-Armstrongs Limited and Cammell Laird & Company, Limited for the concentration of the steel interests of those Companies. As a result of this, English Steel Corporation Limited was registered on 13th March, 1929, and Vickers transferred to that Company for Shares its holding in Taylor Bros. & Company, Limited, and other Companies connected with the steel industry, and certain property at Sheffield.

Following the formation of Vickers-Armstrongs Limited, Vickers Limited directly operated two Works only, and it was decided to form private limited companies to take over these establishments. Vickers (Crayford) Limited was formed on the 29th June, 1928, to carry on the engineering activities at the Crayford Works and Vickers (Aviation) Limited was registered on the same day to take over the aviation business at Weybridge.

As previously stated, the original issued capital of the Company was £155,000. This was increased from time to time until it reached the figure of £20,679,290, but in 1926 was reduced by £3,210,322 to £12,468,968, made up as under:—

	£
£750,000 Preferred 5 per cent. Stock	750,000
750,000 5 per cent. Preference Shares of £1 each (fully paid) ...	750,000
6,863,807 5 per cent. (tax free) Cumulative Preference Shares of £1 each (fully paid) ...	6,863,807
12,315,483 Ordinary Shares of 6s. 8d. each (fully paid) ...	4,105,161
	<u>£12,468,968</u>

The authorised capital is:—

£750,000 Preferred 5 per cent. Stock	750,000
750,000 5 per cent. Preference Shares of £1 each ...	750,000
7,000,000 5 per cent. Cumulative Preference Shares of £1 each (free of tax up to 6s. in the £) ...	7,000,000
54,000,000 Ordinary Shares of 6s. 8d. each ...	18,000,000
	<u>£26,500,000</u>

The debenture capital is:—

4 per cent. First Mortgage Debenture Stock	£1,250,000
Less Redeemed and cancelled ...	12,452
	<u>£1,237,548</u>
5½ per cent. First Mortgage Debenture Stock	2,000,000
	<u>£3,237,548</u>

Below are shown the dividends paid on the Ordinary Share Capital since the inception of the Company:—

Year.	Per cent.
1868 ...	10
1869 ...	12½
1870 ...	12½
1871 ...	7½
1872 ...	10
1873 ...	6½
1874 ...	9
1875 ...	5
1876 ...	6
1877 ...	10
1878 ...	8½
	on old shares
	4½
	on new issue
1879 ...	8½
1880 ...	12½
1881 ...	12
	on old shares
	6
	on new issue
1882 ...	13½
1883 ...	15
1884 ...	14
1885 ...	14
1886 ...	14
1887 ...	4
1888 ...	4
1889 ...	6½
1890 ...	7½
1891 ...	6½
1892 ...	6½
1893 ...	4
1894 ...	7½
1895 ...	10 & 5 bonus
1896 ...	10 & 5 bonus
1897 ...	15
1898 ...	15 & 5 interest to Nordenfelt shareholders in lieu of dividend
1899 ...	20
	on old shares
	15
	on new issue
1900 ...	20
1901 ...	15
1902 ...	12½
1903 ...	10
1904 ...	12½
1905 ...	15
1906 ...	15
1907 ...	15
1908 ...	10
1909 ...	10
1910 ...	10
1911 ...	10
1912 ...	10
1913 ...	12½
1914 ...	12½
1915 ...	12½
1916 ...	12½
1917 ...	12½

All above free of tax.

1918 ...	12½
1919 ...	11½

Both free of tax up to 5s.

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Year.	Per cent.
1920	Nil
1921	5
1922	5
1923	Nil
1924	Nil
1925	Nil
1926	Nil
1927	8
1928	8
1929	8
1930	8
1931	5
1932	4
1933	4
1934	6

1921-1934 all less tax.

It is thought that at this point it would be convenient to give a statement showing the present composition of the Vickers Group, and the nature of the business carried on by each Company. This is given hereunder:—

VICKERS LIMITED—Holding Company, controlling:—

A. Vickers—Armstrongs, Limited—Shipbuilders, Engineers and Armament Manufacturers, which controls:—

Palmers Hebburn Co., Ltd.—Ship Repairers, Drydock Owners, etc.

The Placencia de las Armas Co., Ltd.—Holding company, which controls Sociedad Anonima de Placencia de las Armas—Armament Manufacturers and General Engineers.

The Thames Ammunition Works, Ltd.—Explosives Manufacturers and Ammunition Filling.

The Variable Speed Gear, Limited—Hydraulic Variable Speed Gears and Pump Manufacturers.

Vickers (Ireland), Limited—Engineers and Shipbuilders.

The Whitehead Torpedo Co., Ltd.—Manufacturers of Torpedoes, etc.

English Steel Corporation Ltd.—Manufacturers of Commercial Steels, Armour Plate, Heavy Forgings, etc., which controls:—

The Darlington Forge Limited.—Forgemasters (not active).

Firth-Vickers Stainless Steels Ltd.—(jointly with Thomas Firth & John Brown Limited).—Manufacturers of Stainless Steels.

Industrial Steels Ltd.—Commercial Steels Sales Company.

Taylor Bros. & Co., Ltd.—Manufacturers of Wheels, Tyres and Axles.

B. Metropolitan-Cammell Carriage & Wagon Co., Limited—(jointly with Cammell Laird & Co., Ltd.).—Manufacturers of Railway Rolling Stock and Bus Bodies, which controls:—

The Leeds Forge Co., Ltd.—Retained for registration purposes only.

G. H. Sheffield & Co. (Engineers), Ltd.—General Engineers and Agents.

Metropolitan-Cammell-Weymann Motor Bodies Ltd.—Bus sales Company.

The Midland Railway Carriage & Wagon Co., Ltd.—Railway Wagon Hiers.

The Patent Shaft & Axletree Co., Limited.—Iron and Steel manufacturers.

The Willingsworth Iron Co., Limited.—Iron manufacturers (closed down except for sale of slag).

Companies kept alive to preserve trade names only:—

Ashbury Railway Carriage & Iron Co., Ltd.
 Lancaster Railway Carriage & Wagon Co., Ltd.

Brown Marshalls & Co., Limited.

Oldbury Railway Carriage & Wagon Co., Ltd.

Blake Boiler Wagon & Engineering Co., Ltd.

C. Other Manufacturing Companies:—

Robert Boby Limited.—Manufacturers of Materials Handling Plant, Brewery Machinery, etc.

Cooke Troughton & Simms Ltd.—Scientific Instrument Makers, which controls:—

British Separators Limited.—Factors of "Vickcen" Oil Separators.

The Ioco Rubber & Waterproofing Co., Ltd.—India Rubber Manufacturers and Proofers.

Vickers (Aviation) Limited.—Aircraft Manufacturers, which controls:—

The Supermarine Aviation Works (Vickers) Ltd.—Aircraft Manufacturers.

Vickers Train Lighting Co., Ltd.—Factors of Train Lighting Equipment.

D. Finance and Property Owning Companies:—

Electric Holdings Limited.—Holding and Investment Company, which controls:—

Airship Guarantees Co., Ltd.—Retained for registration purposes only.

The Broadway Finance & Investment Co., Ltd.—Holding and Investment Company.

Steel Investments Limited.—Investment Company.

Manufacturers Estates & Assets Co., Limited.—Estates Company, which controls:—

Ise of Walney Estates Co., Ltd.—Estate Company, which in its turn controls:—

The Barrow & District Permanent Benefit Building Society.—Building Society.

E. Agency, etc., Companies:—

British Australasian Tractor Co. (Proprietary)

Ltd. (through the Broadway Finance & Investment Co., Ltd.) formed for trading in Agricultural Tractors—business now being wound up.

Vickers & Metropolitan Carriage (South Africa) Ltd.—Agency Company.

Vickers (India) Limited.—Agency Company.

It will be apparent from the foregoing statement that the following are the concerns engaged either wholly or partially in the manufacture of munitions of war in which either Vickers Limited or Vickers-Armstrongs Limited has a controlling interest, although it is to be noted that many of the Companies mentioned have important commercial interests:—

Vickers Limited.

Vickers-Armstrongs Limited.

Vickers (Aviation) Limited, and The Supermarine Aviation Works (Vickers) Limited.

Vickers-Armstrongs Limited.

English Steel Corporation Limited.

S.A. de Placencia de las Armas (through

The Placencia de las Armas Co., Limited).

The Thames Ammunition Works Limited.

The Whitehead Torpedo Co., Limited.

It may be mentioned here that in the information furnished to the Commission particulars regarding S.A. de Placencia de las Armas, have been omitted, since all that Company's manufacturing and trading activities are centred in Spain.

Foreign Interests.

The foreign armament investments of the Group are as under:—

Japan.

1. 25 per cent. of the capital of Kabushiki Kwaisha Nihon Seikoso, a Company engaged in the manufacture of ordnance and shipbuilding material machinery, etc.

2. 20 per cent. of the capital of Wanishi Kozan Kabushiki Kwaisha which is, since the recent sale of iron and steel plant to the Nihon Seitetsu Kwaisha, mainly a holding company.

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Spain.

1. 21 per cent. of the capital of La Sociedad Espanola de Construcción Naval, a Company mainly engaged in armament and shipbuilding work. Vickers-Armstrongs Limited, jointly with John Brown & Co., Limited, are Technical Advisers to La Sociedad.

2. S.A. de Placencia de las Armas holds 22 per cent. of the issued capital of Experiencias Industriales S.A., a Company engaged in the manufacture of armaments and commercial electrical work.

Roumania.

Electric Holdings Limited has an investment of 13½ per cent. of the issued capital of a holding Company domiciled in Monaco and called Cie Europeenne de Participations Industrielles, which Company has an interest in Acieries et Domaines de Resita, an important Company in Roumania engaged in the heavy industries and the manufacture of armaments.

An investment of 20½ per cent. of the issued capital of Uzinele Metalurgice Copsa Mica si Cugir is held by Vickers-Armstrongs Limited, such having been received as consideration for machinery supplied.

The only foreign investments, other than those mentioned specifically above, are in Companies engaged in electrical undertakings and the manufacture of commercial products.

A great deal has been written regarding the supposed ramifications of the Vickers Group, the implication being that it has worldwide connections, control over many foreign Companies, and in short, is a member of what has been styled "An International Armaments Ring." Such views, while no doubt quite sincerely held, are based upon a complete misapprehension of the actual facts as will be demonstrated by the statement of the present composition of the Vickers Group and of its foreign interests given in this memorandum. It is desired to state now, however, that Vickers Limited and/or its Subsidiary and Associated Companies, are not members of an international armaments ring, neither do they control any foreign companies whatsoever either by shareholding, by nomination of Directors or by agreements in any form. The Placencia de las Armas Co., Limited, is a British registered Company and controls S.A. de Placencia de las Armas, a Spanish company having small works in Spain primarily for the production of arms.

1847. *Chairman:* Thank you. I will ask Sir Charles Craven to deal with the next Statement. Sir Herbert, if you wish to add something to the printed statement, now is the time to do it, please.

Sir Herbert Lawrence: With your permission, Sir, I do not desire at this stage to make any lengthy supplementary statement, particularly as my companies have endeavoured to supply to the Commission all the information and particulars for which they have been asked. The Vickers group of companies have been anxious from the outset of this inquiry to afford all information which it lay within their power to supply to assist the members of the Commission in arriving at their recommendations on the reference which has been made to them, and I trust that the Commission holds the view that my companies have endeavoured to be helpful.

At the same time, I should like to address you quite shortly on a few matters which appear to me to be of major importance.

1. THE COMPOSITION OF THE VICKERS GROUP.—The Commission will appreciate that in the case of an organisation of the size of the Vickers group events happen from day to day which in some way or other affect the structure of the group and the investments held by the various constituent companies. In this connection a supplementary statement*

giving a note of the changes which have taken place was sent to the Commission and no doubt has been before the members. There is one matter, however, to which I would make reference which has materialised since that supplementary statement was sent in. In view of the acquisition by Vickers Limited of the whole of the capital of Vickers-Armstrongs Limited and the elimination thereby of outside shareholders in that company, Vickers-Armstrongs Limited was, on the 19th December, 1935, changed from a public company to a private company, and on the 1st January, 1936, the board of the company was reconstituted and to-day is as follows:—

Commander Sir Charles Craven, R.N. (*Chairman*).

General Sir J. F. Noel Birch.

Mr. J. Callander.

Sir A. George Hadcock.

Mr. F. C. Yapp.

Mr. J. Reid Young.

It will be seen therefore that the following directors who sat on the board of Vickers-Armstrongs Limited as nominees of the Armstrong Whitworth interests, namely:—

Sir James A. Cooper,

Major-General G. P. Dawday,

Sir Otto Niemeyer,

have now retired from the board.

The Union of Democratic Control made extensive reference to what have been termed the world wide ramifications of the Vickers group and in support of the statement has furnished to the Commission a chart setting out these supposed ramifications. In regard to this I assume that from a perusal of the statement* of the structure of the Vickers group with the supporting documents put forward by Vickers Limited the members of the Commission will be convinced of the misleading nature of the chart prepared by the Union of Democratic Control.

2. RELATIONS OF VICKERS LIMITED WITH VARIOUS BANKING HOUSES.—I joined the board of Vickers Limited in 1921, at the request of the then board of Vickers, in order to advise upon financial matters.

Glyn Mills & Co., of which bank I am a managing partner have been bankers to Vickers Limited since 1869 and have also been trustees to the debenture holders and registrars for a very considerable period. Glyns appear as owners of a large block of shares in Vickers-Armstrongs Limited but such shares are held as trustees for the debenture holders of Vickers and the bank has no beneficial interest in the security. Except as appears above the relations between Glyns and Vickers have throughout been purely those of banker and customer.

It happens that I am also chairman of the London Committee of the Ottoman Bank and the Bank of Roumania and was chairman of the Anglo-International Bank. None of these institutions has any business relations of any importance with Vickers though naturally it is possible that from time to time either the Ottoman Bank or the Bank of Roumania may have been instrumental in purchasing currency in either Turkey or Roumania for Vickers Limited.

As regards the shareholding in the Anglo-International Bank, 8,625 shares were acquired in exchange for 5,750 shares in British Trade Corporation, Limited, formed on the recommendation of a committee appointed by the Board of Trade, and the balance was received in June, 1923, from the Metropolitan Carriage Wagon and Finance Co., Limited, when Vickers Limited took over the cash and investments of that company.

3. RELATIONS WITH THE SUN INSURANCE COMPANY.

—In 1926, discussions took place between Vickers and Armstrongs with reference to the surplus

* Not printed.

* See p. 350.

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[Continued.]

capacity for production which was lying unemployed in both firms. It was quite obvious that there was not sufficient work to go round and some sort of amalgamation and concentration of plant was essential.

A joint committee of the two companies presided over by Lord Plender reported, in June, 1927, that the fusion of the armaments interests of the two concerns was essential and could only be carried out with the co-operation of the Government. It was proposed that the Government should be asked to pay, for a fixed number of years, a sum to be agreed, by way of rental, for shops which would have to be closed, and which would be kept by the amalgamated firms in suitable condition to resume work when required. Upon the committee's report being submitted to the Chancellor of the Exchequer, he replied to the effect that while the Government was sympathetic towards the scheme, no financial help could be afforded.

The matter was then discussed with the Governor of the Bank of England, who, in view of the approval in principle intimated by the Chancellor and in order to assist the rationalisation of the iron and steel industry and to avoid the increase of unemployment and disturbance of labour which would have been made inevitable by the closure of works consequent on the appointment of a receiver for Armstrong Whitworths, agreed to provide, through an intermediary, a sum of £200,000 a year for five years in any year in which the profits of the new company, Vickers-Armstrongs Limited, fell below £900,000. The intermediary for the purpose of this transaction was the Sun Insurance Company.

While the process of rationalisation was going on (during the five years from 1925 to 1932), a sum of £200,000 a year was received by Vickers-Armstrongs. That company is under an obligation up to 1947 to repay this out of an agreed portion of the profits in excess of a sum of £900,000 in any one year.

4. **SIR BASIL ZAHAROFF.**—There have been many references in the course of the American Inquiry and by witnesses before your Commission connecting Sir Basil Zaharoff with Vickers. I think it will dispose of much misunderstanding and misrepresentation in this connection if I briefly state the facts. Since at least 1924 Sir Basil has taken no part whatever in the affairs of the Vickers companies with the exception of retaining an interest in regard to Spanish matters. The only company in the Vickers group of which Sir Basil is a director is The Placencia de las Armas Co., Limited, in Spain. Sir Basil takes no part in the management of the affairs of Vickers Limited, or any company in the group with the exception of Spanish matters referred to above.

5. **VICKERS - SCHNEIDER.**—Some misapprehension exists owing to the inclusion of the name Vickers-Schneider in the list of companies mentioned in the first part of the Fifth Schedule to the Amalgamation Agreement between Vickers and Armstrongs. In fact this was an error in drafting which was overlooked at the time, and no such company as Vickers-Schneider has ever existed or was contemplated. There was an agreement, however, which should have been included in the schedule in question under a proper description, which provided that Vickers and Schneiders would render technical assistance and provide certain machinery to a Polish company named Société des Etablissements Minière de Starachowice.

This last mentioned company was formed under the auspices of the Polish Government, which subscribed for a proportion of its capital, and was granted by that government the right of priority for the manufacture of certain types of armaments.

6. In conclusion, I should like to say how much I and my co-directors still hope the members of the

Commission may be able to adopt the suggestion, which I made in my letter to your Chairman in February last year, that they should visit all or certain of the works belonging to the Vickers group, because I feel sure that such a visit would be useful to the members of the Commission in so far as they would see for themselves the actual equipment and organisation of the works as well as the types of armament and commercial manufactures being carried on in the various establishments.

With your leave, Sir, that is all I wish to say.

1848. **Chairman:** Thank you. I want to ask a few questions about this Spanish company. You have indicated the companies in which Vickers Limited or Vickers-Armstrongs have a controlling interest. Then amongst the companies you have mentioned this Spanish company and at the bottom of the same paragraph you say that that is "a British registered company and controls S. A. de Placencia de las Armas, a Spanish company having small works in Spain." It appears from this statement that this small Spanish company is one of the companies in which you have a controlling interest; but you do not give us any particulars about that company, the extent of its business or the details of its business; and the reason you give is that their trading activities are centred in Spain. But I think the Commission would like to have the same sort of particulars about this company that you have given us about the other companies in which you have a controlling interest.

Sir Herbert Lawrence: May I ask your leave, Sir. I would like Sir Charles Craven to answer that question because he has been a director of these companies.

Sir Charles Craven: This company to-day is employing 250 people. We will certainly bring all the details to-morrow morning, if that will do. It is really purely manufacturing armaments for the Spanish Government. A lot of their orders come in via the main company, but, as I say, it has an employing capacity to-day of 250.

1849. **Mr. Spender:** It has never been used for what may be the suspicion in some people's minds—the export of armaments without licence?

Sir Charles Craven: Certainly not since I have been in the company, and I do not believe it ever has.

1850. **Chairman:** You have stated that Vickers and its associated companies "are not members of an international armaments ring, neither do they control any foreign companies whatsoever" and so forth. I am not suggesting that here there is any inaccuracy about "an international armaments ring"; but it is a fact, is it not, as appears in some of the evidence we have had, that practically all the iron and steel companies that manufacture in England are now associated in some form of combination, for the purpose of controlling prices and regulating areas and so forth?

Sir Charles Craven: Yes, Sir; as part of the International Cartel, you mean?

1851. **Chairman:** I have the names here. For instance, there are Federated Forgemasters.

Sir Charles Craven: That is British.

1852. **Chairman:** Midland Forgemasters.

Sir Charles Craven: British.

1853. **Chairman:** English and Scottish Forgemasters; Forgemasters' Convention, both English and Continental Groups; the Railway Tyre and Axle Makers' Association; the Special Billet and Gun Forgings' Association; the Steel Manufacturers' Nickel Syndicate—we know about that—the Forging Ingot Makers' Association; the Heavy Steel Castings Association; the Roll Castings Association; the English and Scottish Steel Founders' Association; the Turbine Castings Association; and the Cast Steel Wheel Centres Association?

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Sir Charles Craven: Yes.

1854. *Chairman:* It is a fact, is it not, that those associations do embrace practically all at any rate of the important firms engaged in iron and steel manufacture in England?

Sir Charles Craven: In this country.

1855. *Chairman:* And that is for the purpose of regulating prices and controlling areas and so forth?

Sir Charles Craven: Yes, Sir, and in some cases for interchange of technical information.

1856. *Chairman:* Now, Sir Herbert, if you will allow me, there is one more set of questions I want to ask—about these Japanese investments. They are 25 per cent. in one company and 20 per cent. in another company. Then there is 21 per cent. in a Spanish company. Do those holdings enable Vickers Limited or Vickers-Armstrongs in any way to control the operations of those companies, or is it merely investment?

Sir Herbert Lawrence: No; they control them in no way. It is merely investment. We have a representative on the board of the Spanish company, but that is all. In fact, the Spanish company is in very considerable trouble; it owes Vickers a great deal of money.

1857. *Chairman:* Now, if I may go to Statement No. 1,* Sir Herbert. You say "Research work is going on continuously in factories of the Vickers group." Can you give any indication or idea of the number of persons employed in research in the group?

Sir Herbert Lawrence: I could tell you the amount of money which has been spent in the last five years. It is roughly £1,000,000. We spend about £200,000 a year on research. I could give you the number of men employed if you wish it.

Chairman: Oh, no. That gives us an idea.

1858. *Sir Thomas Allen:* Is that expenditure for all purposes of your production?

Sir Herbert Lawrence: Yes, practically for all purposes, because it is so mixed up, the armaments side with the commercial side.

Sir Charles Craven: I think that is a very modest figure of what we actually do in the way of research. It does not include a good deal of research expenditure on the production side.

1859. *Professor Gutteridge:* Have you a separate research staff?

Sir Charles Craven: Oh, yes; in each of the companies.

1860. *Chairman:* I understand from your statement that the research in your industrial part is really of essential value in your armaments part of the business?

Sir Herbert Lawrence: Undoubtedly; the whole tendency is for these special tests to be used both in commercial work and in armaments work, and the research work that is done for one is of infinite value for the other.

1861. *Chairman:* You refer to the demand from abroad which has resulted in this anti-aircraft gun. Is it possible to give any information as to how much of the expenditure which we are told has been made in the last five years upon armaments has been expenditure upon that gun?

Mr. Yapp: Do you mean how much of the research work?

1862. *Chairman:* No. I mean how much has been expended on the making of the gun.

Sir Charles Craven: That gun was developed before the last five years.

1863. *Chairman:* I was wondering what proportion of the expenditure on armaments work was expenditure upon this gun.

Sir Charles Craven: A good deal.

Mr. Yapp: Do you mean the value of the contracts received for the gun?

* See p. 347.

1864. *Chairman:* No. We have been given the figures of expenditure upon armaments work in different years and I was wondering how much of that expenditure was attributable to this gun, which is a defensive weapon.

Mr. Yapp: In the development of that equipment, we have spent, I should say, something in the neighbourhood of £100,000.

1865. *Chairman:* That is in developing it?

Mr. Yapp: Yes.

1866. *Chairman:* But after it has been developed, how much of the expenditure on armaments has been expenditure upon making the gun?

Mr. Yapp: Do you mean against contracts received? We do not make the gun for stock, you understand.

1867. *Chairman:* No. I mean for supplying it under contracts.

Mr. Yapp: We have received contracts amounting to many hundreds of thousands of pounds for this gun from various foreign countries.

Secretary: I think that what the Chairman means is what proportion of the turnover figures relates to that gun.

Mr. Yapp: We can give you that figure.* It amounts to many hundred of thousands of pounds.

1868. *Chairman:* A feature is made in your statement about the demand for this gun and we have also the turnover on armaments and I would like to know how much of the turnover is for this gun, or is attributable to this gun.

How much of the turnover that we have been given for recent years includes ships—I mean warships? The cost of warships is so great that it might be that a very large proportion of the turnover in a given year was perhaps the cost of a warship?

Sir Charles Craven: We have not brought with us the figures for the past but the position today is that in all the works of Vickers-Armstrongs we have a balance of work ahead—that is the orders booked, less expenditure—at this moment of £11,459,000. Of that, warships are £3,563,000.

1869. *Chairman:* Warships?

Sir Charles Craven: Warships. That is the hull and machinery of the warship as apart from the armament of the warship. The armament is a separate contract and goes into the armament side. Of the warship figure £2,454,000 is British, £1,208,000 is foreign. On the armament side the British is £6,360,000 and the foreign is £1,435,000. That is warship and armament work. The armament side includes military as well as naval, but in a ship we always talk of the hull and machinery as quite separate. We call that the ship.

1870. *Sir Thomas Allen:* Those figures indicate a vast increase over the production in 1934?

Sir Charles Craven: Yes. There is a considerable increase in orders booked. This is not production. This is a statement of orders booked.

Sir Thomas Allen: Of potential manufacture.

1871. *Chairman:* That is the present position. We have statements of turnover that you have given us. In Appendix 1† you have given us the turnover for the years 1930, 1931, 1932, 1933 and 1934. Then you have given us the total turnover for each company; the percentage attributable to armaments; the percentage of armaments, British Empire; the percentage of armaments, foreign. The total turnover for, we will take Vickers-Armstrongs Ltd., in 1930 was £7,626,000. Is a considerable amount of that attributable to warships?

Sir Charles Craven: Yes. But the warships as defined in your questionnaire are in armaments.

1872. *Chairman:* Yes. I know. That is a very large amount of turnover; but of course one single ship represents a very large proportion of the total output, does it not?

Sir Charles Craven: Yes.

* See Appendix 12, p. 419.

† See p. 402.

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1873. *Chairman*: I was wondering how much of the total turnover that you have given us is attributable to warships.

Sir Charles Craven: Do you mean the hull and machinery of a warship apart from its armour and armament?

1874. *Chairman*: No, including the armament.

Sir Charles Craven: It will take a little time but we will get that out.

1875. *Chairman*: Thank you.

Sir Charles Craven: Do you want it for each of those years? You ought to have it for each of the years, to give you an idea.

1876. *Chairman*: Yes.

Sir Charles Craven: Of course, the difficulty is that the British Admiralty do not order a cruiser complete. They order the hull, the machinery, the armour, the guns, the sights, the gun mountings and all that, on separate contracts.

1877. *Chairman*: But it is quite possible to add it all up and see what the ship costs.

Sir Charles Craven: Yes, but perhaps we do not get the whole order.

1878. *Chairman*: I only want the proportion representing what you do get.

Mr. Yapp: It is rather difficult.

Sir Charles Craven: In a foreign ship it is complete; there is one contract for the whole lot.

1879. *Professor Gutteridge*: You supply the ammunition, do you not, in the case of a foreign ship?

Sir Charles Craven: In some cases they insist that we do.

1880. *Mr. Spender*: If you have an order for a foreign ship there is one contract for the whole of it?

Sir Charles Craven: As a rule.

Mr. Yapp: It may not be. It may be that the hull and machinery is ordered from one ship-builder and we supply the armament.

1881. *Mr. Spender*: You mean for the foreign ship?

Mr. Yapp: Yes.

1882. *Chairman*: What is in my mind is this. There is a very large expenditure on armaments, which includes for this purpose warships.

Mr. Yapp: Yes.

1883. *Chairman*: And it gives the impression that there is an immense amount of offensive war material being manufactured and perhaps sent abroad, or kept in this country, but of course when you take warships that is an item that in itself is very expensive.

Mr. Yapp: Quite.

1884. *Chairman*: Every warship for which you get an order accounts for a considerable proportion of the total turnover?

Mr. Yapp: Yes.

1885. *Chairman*: I was wondering if it would be possible to ascertain how much of this turnover is attributable to warships and how much is left for the rest of the expenditure on armaments.

Sir Charles Craven: That would be quite easy.

Mr. Yapp: It would be quite easy to divide these figures between naval and military armaments.

Sir Herbert Lawrence: Would that meet the point, Sir?

1886. *Chairman*: Yes.

Mr. Yapp: I could give that information* very quickly, for the naval and military.

Sir Herbert Lawrence: We could give you a figure for it now but the actual military part is extraordinarily small. It is nearly all naval.

Sir Charles Craven: I think I know what you mean, Sir. I have a sailing training ship down here as a warship for armaments for Brazil. She would not dare to enter into an engagement with anybody.

1887. *Professor Gutteridge*: For the purposes that you have suggested, Mr. Chairman, that would be included.

Mr. Yapp: That would come into the naval side.

1888. *Chairman*: With reference to licensing, you say: "... the commet has been made that only very few licences have been refused." Then, later on: "This circumstance is capable of a very simple explanation. Very many inquiries are received from abroad which are, obviously, undesirable." Are any records kept of the applications that are made and are not proceeded with on the ground of their obvious undesirability?

Mr. Yapp: Do you mean, Sir, have we any records of inquiries that we receive from abroad that we do not consider desirable to deal with?

1889. *Chairman*: Yes. Could you supply them for the last five years?

Mr. Yapp: Yes, Sir, for the last five years.*

1890. *Chairman*: Now, Sir Herbert, may I ask you to turn to Statement No. 2,† where it is stated that "in regard to many of the large Government contracts, before prices are agreed in respect of the supplies involved, a thorough examination of charges, and of estimates of materials and wages, is made by the Government departments concerned." Would there be any objection on the part of your associated companies in the case of any Government order that there should be permission given for the completest examination, and costings taken out with regard to the cost of executing the proposed order?

Sir Charles Craven: Wherever there is a monopoly business, the Government departments have that right. If we are doing work for the War Office that is something special—I am thinking of a big contract we have in hand now—we prepare an estimate and they prepare an estimate; they have full access to our establishment charges, and then an agreed percentage is applied and we build up a price. That is the maximum price that we are allowed. Then they put us on to "time and line"—as it is called, and they net cost the whole thing from beginning to end. They get all the savings, and if we exceed that agreed maximum price, we bear the excess.

1891. *Chairman*: Does that apply to all Government orders?

Sir Charles Craven: No, Sir, only where there is a monopoly.

1892. *Chairman*: What do you mean by monopoly?

Sir Charles Craven: By our having a monopoly I mean where we are the only firm which could manufacture certain products by virtue of possessing the very special plant required for the manufacture of those products.

Government departments concerned are constantly investigating our establishment charges. In cases where other firms are competing for a contract, I wish to make it clear that when once a Government department accept the price of the successful firm, the Government department does not investigate the cost; because obviously, if they did, they would have to bear any increase in wages and material which occur during the course of the execution of the contract.

1893. *Chairman*: And the check on prices in these cases is by tender?

Sir Charles Craven: Yes.

1894. *Chairman*: By comparing tenders?

Sir Charles Craven: Yes. I wish to make it clear that whenever there is no genuine commercial competition for any of our products, the Government have a check on us either through the Royal Dockyard costs, or through the competitive costs at Woolwich Arsenal, with the one exception of non-transferable naval mountings where we are the only firm who have the plant and experience for their production. In the case of these mountings, the

* See Appendix 13, p. 420.

* See Appendix 14, p. 421.

† See p. 371.

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fullest technical estimating is carried out by a Government expert staff, and we again give full information regarding establishment charges.

1895. *Sir Thomas Allen*: We have been told there is no organised costing within the three services of the Government. I presume you would have a private costing system within the ambit of your association?

Sir Charles Craven: That is so, sir. We think it is very good.

1896. *Sir Thomas Allen*: I have no doubt it is.

Sir Charles Craven: The Government departments which I deal with have a very efficient system of checking us, and estimating, and of checking the costings too.

1897. *Chairman*: You put the case where there is a monopoly. Have your association of firms a monopoly in a special range—if that is the right word—of armaments?

Sir Charles Craven: The only item is what is known as non-transferable mountings.

1898. *Professor Gutteridge*: Have you not got a virtual monopoly in tanks?

Sir Charles Craven: I should not call it a monopoly. We are actually doing most of the tanks which are done by private firms.

1899. *Professor Gutteridge*: You do not regard it as a monopoly in fact?

Sir Charles Craven: Why do you say that?

1900. *Professor Gutteridge*: I just want to see if I understand this point correctly. Are what you call the monopoly items limited to cases in which you have a master patent?

Sir Herbert Lawrence: No, it is only there where we have to maintain the special plant for it—such as for big mechanical mountings.

1901. *Chairman*: I have already referred to the large number of associations covering the iron and steel trades. Is there any real competition in any cases where you have not got a monopoly?

Sir Charles Craven: I think Mr. Dunbar of the English Steel Corporation, who knows all these arrangements in the British steel industry, can answer that question.

Mr. Dunbar: The associations of which you speak are only to a very small extent connected with armaments, and there is virtually no competition between the members. The prices are arranged in each case with the knowledge of the Government departments concerned, and in all cases the Government have the right, and exercise the right, of investigating the costs of any individual producer. They also discuss with the association, and consult with the association as an association, or with any individual producer in the association.

1902. *Mr. Spender*: When you say that prices are arranged, do we understand you to mean that there is a common price, that there is only one price?

Mr. Dunbar: Yes, one common price. That is almost an invariable rule.

1903. *Mr. Spender*: So that in effect all competition is eliminated by that method?

Mr. Dunbar: All competition is eliminated. Within the last few years free and open competition and increasing competition has had a disastrous effect on all concerned, and would, unless checked, have ultimately resulted disastrously to the British steel industry as a whole.

1904. *Sir Thomas Allen*: You think Great Britain was in danger of being detrimentally affected by this competition?

Mr. Dunbar: Yes. If you take the case of one particular commodity only, gun billets are very little different from billets sold by hundreds of thousands of tons for commercial purposes. They are one particular composition which can be made by a number of steel makers, and the Government has been in the habit of putting them out to open tender. The tonnage involved in each order would be quite considerable and would help to keep the

plant employed and in the circumstances which have existed in the last two or three years there has been a great deal of competition for such orders.

1905. *Professor Gutteridge*: Does the international cartel enter into that at all, as far as armaments are concerned?

Mr. Dunbar: No, armaments are quite outside the cartel.

1906. *Chairman*: Then you say: "Similarly, there is no doubt that the very heavy forgings of special alloy steel required by Imperial Chemical Industries for the new plant at Billingham recently erected for the production of oil from coal by the hydrogenation process could not have been manufactured without the accumulated knowledge of the three principal forgemasters". Who are they?

Sir C. Craven: The English Steel Corporation, which comprises the steel interests of the old Vickers, Armstrong Whitworths and Cammel Lairds; and the other two are Firth Browns and Beardmores. They represent about 80 per cent. of the forgemasters' capacity in the industry.

Chairman: I think that exhausts the questions that I wanted to put to Sir Herbert, because all the other questions of a concrete nature that I want to put I shall want to put to you, Sir Charles, in due course.

1907. *Dame Rachel Crowdy*: You were speaking of research just now. Can we be told what Vickers do about inventions made by their employees? Are inventions and improvements made by their employees rewarded in any way?

Sir Charles Craven: This is an extract from a works order:

"(1) All patents are to be taken out in the joint names of the inventor and the company. (2) Inventions made by employees which are of a nature allied to products already manufactured by the company must be assigned to the company, who may reward the inventor at their discretion in the event of such inventions proving a source of profit to the company. (3) Inventions made by employees which are not of a nature allied to products already manufactured by the company must be offered in the first place to the company, who, in the event of acceptance, will reward the inventor provided such inventions prove to be a source of profit to the company."

The difference between the two is that it is a matter of private business in one case, and in the other it is not. Apart from this, I think Admiral Bacon referred to this matter. In any decently constituted private works the people are encouraged to come forward with their ideas, and in all our works we have committees presided over by a very senior manager. For instance, at Barrow the manager of the engineering works, one of our local directors, presides over this committee; and then, if it is a large matter, it comes to me. He has authority to give up to a small amount, but for larger amounts he comes to me. I know of two or three cases at any rate in the last few years. One was a very small thing, and it was a matter which did not suit our machinery. We did all the development, and the man who made the invention received 75 per cent. of what we got out of it.

1908. *Dame Rachel Crowdy*: Have you any idea of what has been spent on rewards, in the last three years, say?

Sir Charles Craven: Not very much. There have been very few outstanding inventions in the last year or so.

1909. *Dame Rachel Crowdy*: We have heard so much lately in evidence to the effect that, under a State monopoly, inventiveness would not be so frequent. There is not so much enthusiasm in Government service, it is said, about inventions, and I was wondering how the private firms create the enthusiasm of which we hear so much.

Sir Charles Craven: We encourage our people, as I have said, but the fact remains that we have

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not had any inventions in the last few years of an outstanding nature. Then there is another point, and that is this, that in a private firm I think probably the best reward a man can get is promotion in his own firm.

1910. *Dame Rachel Crowdy*: By making himself really useful?

Sir Charles Craven: Yes, by making himself useful.

1911. *Dame Rachel Crowdy*: Going back to what you said just now about competition, I do not know whether you can answer this question in public. You have answered it partly. Are you in competition with private manufacturers in this country, and can you give us the names of the firms with whom you are actually in competition?

Sir Charles Craven: I am afraid I should have to look that up for you, but it is all the leading shipbuilders, in respect of warships, and, for example, there are only the three forgemasters whom I have just mentioned who make the marine forgings, which are an important part of the ship. There will be the three leading forgemasters and several small firms.

1912. *Dame Rachel Crowdy*: It would be very interesting to have it.

Sir Charles Craven: I think we have given it in our reply to the questionnaire.

Chairman: Yes, it has been given.

Secretary: I think what *Dame Rachel* must mean is: With which of those firms do you really regard yourselves as being in effective competition?

1913. *Dame Rachel Crowdy*: Yes, with which are you in competition, and with which are you in co-operation.

Sir Charles Craven: We are in co-operation in practically all cases—not all, but nearly all.

1914. *Dame Rachel Crowdy*: I am now rather following up the question of monopoly which you were dealing with just now. It will be interesting to know what are the monopoly sections.

Sir Charles Craven: I think when *Sir Herbert Lawrence* used the word "monopoly" he was using it in connection with one firm.

Sir Herbert Lawrence: That is so.

1915. *Dame Rachel Crowdy*: I appreciate that, but I wanted to find out exactly what firms are in actual competition with you.

Sir Herbert Lawrence: For guns and mountings?

1916. *Dame Rachel Crowdy*: Yes, or any other material which you manufacture. I do not press it at the moment, but if you can let the Commission have it I shall be grateful. We have not got that at the moment.

Sir Herbert Lawrence: I think if you were to take the names which have been given in our written statements that would cover it.

1917. *Dame Rachel Crowdy*: We have had some of the names, but not all, I think.

Sir C. Craven: For instance, there is the B.S.A. Company.

1918. *Dame Rachel Crowdy*: I have only one other question at the moment. The Chairman raised the question of licences, you will remember. I am naturally very interested, as an ex-League of Nations official, in the various discussions that have come before the League of Nations. Can you give us any idea of the quantity of armaments that your firm has exported, say to Japan, between September, 1931, and April, 1933, and to Bolivia and Paraguay from July—

Sir Charles Craven: May I take those dates down? I do not know that we have the details here. Yes, I am told that we have got it here.

Sir Herbert Lawrence: What was the first question?

1919. *Dame Rachel Crowdy*: The first was from September, 1931, to April, 1933—that is, in fact, from the time of the Shanghai incident to the taking over of Jehol by the Japanese.

Sir Herbert Lawrence: We have only got them as orders received.

1920. *Dame Rachel Crowdy*: Can you let me have the orders satisfied?

Sir Charles Craven: Yes, we can get them. 1921. *Dame Rachel Crowdy*: Then my second question is Bolivia and Paraguay between July, 1932, and Christmas, 1934, and then to Colombia and Peru between Christmas, 1932, and July, 1934, and to Italy between September, 1934, and June, 1935; and, if it is not too much trouble, I should be very glad if you could let us know at some time how many separate export licences you had covering any shipments you made.

Sir Charles Craven: To those countries?

1922. *Dame Rachel Crowdy*: Yes, in those periods to those countries.

Sir Charles Craven: Yes. We will let you have those.*

1923. *Chairman*: There is one question I wanted to ask you, and I am reminded of it by a question put to you by *Dame Rachel Crowdy*. It is in connection with what Mr. Pollitt said in his evidence.† The question was asked whether any of your companies were supplying any armaments to Germany, and the answer was that it was done with the complete approval of the Government. Do you know whether—

Sir Herbert Lawrence: May I say what really happened. Miss Rathbone asked a variety of questions and I answered most of them, and I told her in the opening part of the discussion which occurred that, as far as I knew, we had exported nothing to Germany. Then she asked subsequently: Could I assure her that in no circumstances had any of the arms we had exported elsewhere gone to Germany. It was my answer to that question to which I think you refer. I said that while I could give her the assurance that we had sold nothing directly to Germany, I could not say that, if we had sold a gun say to Brazil, Brazil had not sold that gun to Germany.

Chairman: That explains the position. I am much obliged.

1924. *Dame Rachel Crowdy*: Can we get any idea of the amount of money that you spend on press advertising?

Sir Charles Craven: I can get that quite easily.

Sir Herbert Lawrence: We have given it, I think. The figures are actually given in the schedule.

Chairman: We have got the actual figures.

1925. *Dame Rachel Crowdy*: I really wanted to get what is the amount spent by Vickers and I.C.I. combined on that; but I can bring that question up later.

Sir Charles Craven: The I.C.I. I cannot speak of. Do you mean the English Steel Corporation?

Dame Rachel Crowdy: No; I want to get all the companies together, and therefore I want further figures from you.

1926. *Sir Kenneth Lee*: In your statement you say that in the event of a long war it would be possible for the Government to take over the munitions firms, just as they took over the railways in the last war. Would you consider that desirable.

Sir Herbert Lawrence: I think it might lead to a simplification of the various troubles which occurred in 1914. I do not think it would be desirable unless the management were left in the hands of the private firms. On the other hand, it would simplify all questions of illegitimate profits being made through war. The excess profits duty, you will remember, was introduced during the War to prevent anything of that kind, and it resulted in tremendous confusion. If the Government had taken it over, as they did the railways, it would have saved all that trouble.

* See Appendix 15, p. 425.

† Minutes of Evidence, Day 3, Appendix, p. 72.

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1927. *Sir Kenneth Lee*: Then they could conscript all the people, from the managing director down?

Sir Herbert Lawrence: Yes.

1928. *Sir Kenneth Lee*: And they would get a better control?

Sir Herbert Lawrence: Undoubtedly; yes.

1929. *Sir Kenneth Lee*: Then you think that it would be desirable?

Sir Herbert Lawrence: I think it would be desirable, on the whole; because I think, partly from the point of view of efficiency and partly from the point of view that it would relieve the armament people from the odium of making excessive profits, that it would be better.

1930. *Sir Kenneth Lee*: Then, General Lawrence, the Vickers Company started in 1867 with a capital of £155,000, and the capital has been increased gradually. Can you say whether it was increased by the company giving bonus shares, or was it increased by public subscription, or by fresh money being put in?

Sir Herbert Lawrence: Mostly by fresh money, but I think there were two cases in which bonus shares were issued. I shall have to look that up.

Secretary: There are two mentioned in the list, in 1895 and 1896.

Sir Herbert Lawrence: Yes.

1931. *Sir Kenneth Lee*: From the statement, it does not seem clear what the proportion was.

Sir Herbert Lawrence: I will have that looked up.

1932. *Professor Gutteridge*: There are two bonuses referred to, in 1895 and 1896. Are they the only ones?

Sir Herbert Lawrence: I think so. I will have it looked up. There seem to have been three cases, Sir. There was a bonus issue in 1871 of £155,000 in respect of the writing up of the Brightside Works by £80,000 and transfer from reserves of £75,000; 5,000 bonus shares of £50 each were issued in 1881, £200,000 being in respect of a revaluation of goodwill and £50,000 being taken from Reserve; while 75,000 bonus shares of £10 each were issued in 1887 again arising from the writing up of fixed assets including goodwill.

1933. *Sir Kenneth Lee*: I see those are mentioned in your statement. The reference is made to old shares and new shares there. Those are partly bonus shares?

Sir Herbert Lawrence: Yes.

1934. *Sir Kenneth Lee*: And in 1899 there is the same thing, old shares and a new issue?

Mr. Reid Young: Yes.

1935. *Sir Kenneth Lee*: I wanted to make sure whether it was a new issue for cash, or a new issue for bonus.

Sir Herbert Lawrence: They are mostly bonus shares.

Sir Charles Craven: No, they were not.

Sir Herbert Lawrence: Your question is whether they were bonus shares or whether they were issued for cash?

1936. *Sir Kenneth Lee*: Yes—whether it was new money put in.

Sir Herbert Lawrence: The money was provided from the new shares that were issued.

1937. *Sir Kenneth Lee*: With a new firm you would not necessarily issue shares to the public?

Sir Herbert Lawrence: In getting the money concerned, do you mean?

1938. *Sir Kenneth Lee*: Yes.

Sir Herbert Lawrence: In the case of the Metropolitan Carriage Company, which was a very large transaction, the greater number of shares were acquired by Vickers Limited for shares of its own issue, but a proportion of the Metropolitan shares was purchased for cash.

1939. *Sir Kenneth Lee*: What I wanted to get at was whether munition making, taking it over a period of years, was a profitable business. I want to get it clear as to whether it is a much less

profitable business than an ordinary industrial undertaking.

Sir Herbert Lawrence: I think I can get that worked out.

1940. *Mr. Spender*: We want some figures apart from the money obtained through dividends, apart from the percentage, which will enable us to compare it with the amount which we have in front of us.

1941. *Secretary*: Is it to be understood that over this period there was in fact no market issue at all, but that the increases in capital were all obtained in some other way?

Sir Herbert Lawrence: No; there were issues of capital.

1942. *Secretary*: Perhaps you will put in a statement?

Sir Herbert Lawrence: Yes, I think we had better have it made out in a statement covering the whole period.*

1943. *Sir Kenneth Lee*: Your offensive weapons, I take it, are never sold abroad until considerably later, after they have been available in this country?

Sir Herbert Lawrence: I do not quite know how to answer that question. Take the case of the anti-aircraft gun, for instance. The Government here have not bought any from us, but we have sold them freely abroad.

1944. *Sir Kenneth Lee*: That is a defensive weapon, is it not? I was thinking more of an offensive weapon.

Sir Charles Craven: Yes, I suppose that would be the correct way to put it.

Sir Herbert Lawrence: We might, for example, develop a field gun of a particular type for a foreign government.

1945. *Mr. Spender*: You would have to inform the Home Government first?

Sir Charles Craven: They are watching you doing it all the time, Sir. There is no secrecy about it. We have 521 government inspectors in our works.

1946. *Sir Kenneth Lee*: But it would be possible for another country to get a more efficient gun than our army, for instance?

Sir Charles Craven: If they had more efficient judges than our Government had, yes. It is all subject to expert observation.

1947. *Sir Kenneth Lee*: And therefore you claim that the fact that you can sell abroad may stimulate design?

Sir Herbert Lawrence: Oh, certainly, without any question at all. I do not think we should have developed this particular anti-aircraft gun which I have spoken of, if we had not had support from abroad.

1948. *Sir Kenneth Lee*: Just one other question. Have you ever had a director of your company on the board of any German organisation?

Sir Herbert Lawrence: Never, as far as I am aware.

1949. *Sir Kenneth Lee*: And vice versa; there is no German director of any munition works on any board of your company, or of its subsidiaries?

Sir Herbert Lawrence: Of what period are you speaking?

1950. *Sir Kenneth Lee*: In recent times.

Sir Herbert Lawrence: No; none.

1951. *Sir Kenneth Lee*: From 1900, we will say.

Sir Herbert Lawrence: I really could not hold myself responsible for what happened before 1921; but I can easily find out if there was. Certainly there has been none in the last 18 or 20 years.

Sir Charles Craven: There was a German-born managing director of Vickers up till 1904 or 1905, but he must have been, I think, a British subject. He was German born. It was before I joined the company.

* See Q. 2539 and Appendix 16, p. 426.

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1952. *Sir Kenneth Lee*: He was not a director of a German munition factory at the same time?

Sir Charles Craven: Oh, no.*

1953. *Mr. Spender*: Just to correct any possible misapprehension, the fact that the Home Government has not bought up anti-aircraft guns does not mean that it has not been providing itself with anti-aircraft guns, does it?

Sir Herbert Lawrence: Oh, no, Sir; they have got an anti-aircraft gun, the one that was used in 1918, as far as I know, and it is a very good gun; but it is not as good as the new one.

1954. *Mr. Spender*: That is possibly a matter of opinion. Now I want to ask you one question on Statement No. 2. You say: "Experience during the late war demonstrated that a private armament firm is peculiarly adapted by its organisation for extremely rapid increase of output." We have had a considerable amount of evidence suggesting that the output of armament firms was rather slow at the beginning of the last war, and that promises made by many firms, including your own, were not fulfilled. We have had put before us rather a formidable list of promises made and of performance.

Sir Herbert Lawrence: I think, if you will allow me, I should like Sir Charles to answer that; but I would make this observation, that I think the majority of those remarks referred to the manufacture of shell and ammunition, which is not really our particular job. However, I will leave it to Sir Charles to answer it more completely.

1955. *Mr. Spender*: I think the statement was made that the number of shells which you undertook to make was far in advance of the number delivered.

Sir Charles Craven: I have covered this in the statement which I was going to submit to you when my turn came. I should like to explain this, that all cases, as far as I can see, have been criticisms of supplies to the Army. The War Office ordered from us on an average between 1910 and 1914 about £55,000 worth of goods a year. The Admiralty in those same years placed orders with us for nearly £3,000,000 a year. I think that is a part of the reason why we could not be expected to have huge plant ready to expand immediately for the War Office; but I think that some figures for the years in question would be of interest. In the ten years ending August, 1914, our deliveries of machine guns to the War Office were just under eleven guns a year—10-9. Between August and December, 1914, we delivered 301; in 1915 we delivered 2,343; in 1916 we delivered 4,670; in 1917, 21,750; and in 1918 we delivered 41,690. That is building up from the pre-war output, at that time, of just over 10 guns a year.

1956. *Chairman*: Your statement also adds that so far as the Admiralty requirements are concerned, you complied with those?

Sir Charles Craven: Yes. I have never heard any criticism of that.

1957. *Mr. Spender*: Would you say the capacity for expansion has improved since the last war? Do you say it is greater to-day?

Sir Charles Craven: With the greatest respect, I do not think I ought to answer that in public. I am perfectly prepared to answer it.

1958. *Sir Philip Gibbs*: Sir Herbert, the members of the Commission I think are reserving questions on rather special points for Sir Charles Craven. May I ask you a few questions on the sort of general argument and charges—because, of course, as you are fully aware, there have been many bitter charges made against the armament firms, and I think perhaps Messrs. Vickers in particular—and I should like you to answer a few questions on those points. The main charge against the armament firms, including Vickers, is that, apart from the private opinions of individuals in those firms, by the very nature of the business you are antagonistic to world peace.

You would not agree with that, of course?

Sir Herbert Lawrence: Most decidedly not.

1959. *Sir Philip Gibbs*: But, on the other hand, you have made certain admissions in statements which you have made to your general meetings. There are several instances. In one of them you say that a reduction in armaments would adversely affect the prosperity of your firm. At the general meeting in 1927 you said: "If there is to be a further limitation of armaments, the future of the armament business of Vickers, like that of every other armament firm in this country, may become difficult." In 1928 you said: "The proposal for unaval disarmament, if successful, will naturally have an adverse effect on the trading results of Vickers-Armstrongs, should any material reduction result." Now that, in lay opinion, is an admission that as a firm, though not as an individual, you are antagonistic to any naval reduction?

Sir Herbert Lawrence: May I put it in this way, that I think that is an incorrect and unfair inference to draw. Quite obviously I do not deny the fact for a minute that Vickers' principal interest is in making armaments and instruments of war; but to infer from that that the board of Vickers is anxious to use them in war is, I think, carrying it too far.

1960. *Sir Philip Gibbs*: Is it carrying it too far to suggest that you dislike the idea of a world naval limitation?

Sir Herbert Lawrence: No, I do not think that that could be inferred at all from my speech. Please remember, Sir Philip, that I was addressing the proprietors, the shareholders, of this company, who want to know the circumstances under which their property is being administered. I endeavoured to explain to them that, if there was a world limitation of armaments, their business goes out as well.

1961. *Sir Philip Gibbs*: I am not, of course, making any suggestion against you as an individual.

Sir Herbert Lawrence: I perfectly appreciate that.

1962. *Sir Philip Gibbs*: But, speaking generally, the charge is that, in a sort of natural and inevitable way, the armament firms must dislike, and perhaps even attempt to prevent, anything like a reduction in arms, either in this country or in the world.

Sir Herbert Lawrence: I may be prepared to admit that people may draw that sort of inference from my remarks—though if they do draw that inference my remarks were interpreted incorrectly—but I was only trying to state a perfectly obvious fact. If the world is to be at peace, it might be, quite obviously, that the business of Vickers, Limited, will disappear. That may be a consummation to be wished for.

1963. *Sir Philip Gibbs*: Of course, you must draw a distinction between your private individual opinion and the interests of the firm.

Sir Herbert Lawrence: Quite so.

1964. *Chairman*: If the demand for your production ceases altogether, then your company comes to an end?

Sir Herbert Lawrence: Yes.

1965. *Chairman*: That is what it comes to?

Sir Herbert Lawrence: Yes. You know, from the returns which we have handed to you, that a very large proportion of our business is armaments, pure and simple. There is a residuum. There is a percentage which varies to a considerable extent, but it would not support us in the present situation. We make no secret of it.

1966. *Sir Philip Gibbs*: You see, the argument put against you as an armament firm is that by your very efficiency as a business you create world danger. Would you admit that at all?

Sir Herbert Lawrence: I do not think I would be prepared to. I do not think that that argument can really be sustained.

1967. *Sir Philip Gibbs*: I should like just to quote to you a few words from a statement by Lord Wester Wemyss, who was, as you know, First Sea Lord

* See below, Q. 234.

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towards the end of the War. His argument really is rather powerful, and I think gives an answer to this point. He says:

"Apart from the moral objection to the present system, which is that warfare is a direct occasion for private gain, the system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of every kind naturally wants the highest possible output. Not only, therefore, has it a direct interest in the inflation of the Army and Navy Estimates and in world scares, but it is equally in its interests to push its foreign business. The more armaments are increased abroad, the more they must be increased at home."

Now, it is on the last sentence that I would rather like to ask you one or two questions; that is to say, that the more armaments are increased abroad, the more they must be increased at home; and I would immediately ask you a definite question about that anti-aircraft gun. You inveited that anti-aircraft gun and sold it to a foreign country, or to foreign countries. Does it not naturally follow, therefore, that the British Government must buy that new type of anti-aircraft gun in order to secure itself?

Sir Herbert Lawrence: I do not think it follows necessarily in this case, where the position was that the British Government were not unprovided with an anti-aircraft gun altogether.

1968. *Sir Philip Gibbs:* But supposing it is a better design of gun, does it not force it on the British Government to provide themselves with it, for the national security?

Sir Herbert Lawrence: It has not forced it upon them so far; but I do not think it necessarily follows—not necessarily.

1969. *Sir Philip Gibbs:* Supposing, for instance, that one of your subsidiary companies sells an improved type of machine gun, or any other armament, to a foreign country, does it not rather necessarily follow that another country, which may be in fear of the first, should therefore immediately order that type of weapon?

Sir Herbert Lawrence: I do not think it necessarily follows. You must remember that we cannot supply any country with anything without obtaining a licence. The Government know before we are permitted to do it, and therefore they have the opportunity, if they wish it, of either stopping it or using it themselves.

1970. *Sir Philip Gibbs:* I appreciate that, but I am really putting forward the argument that the very efficiency of your firm, and its enormous power and reputation, gradually raises the standard and the quantity of the arms in the world. Will you admit that?

Sir Herbert Lawrence: I should not have said the quantity. It might possibly raise the standard of arms.

1971. *Sir Philip Gibbs:* Does not that also include quantity?

Sir Herbert Lawrence: Not necessarily.

1972. *Sir Philip Gibbs:* Not necessarily; but the tendency would be to do so, would it not?

Sir Herbert Lawrence: I do not know. Suppose you came back simply to having pikes and swords, and then the special invention of sharpening were made, it would not extend the manufacture of them, necessarily. It would really depend more on political matters than on matters of that sort. It is not the efficiency of modern mechanism which makes it so much more in demand.

1973. *Sir Philip Gibbs:* But I think it is the efficiency of modern mechanism which forces a country which may be afraid of attack, or which desires to increase its defence, to invest in particular designs?

Sir Herbert Lawrence: Within certain limits, I suppose that might be a fair argument. It would be, in truth, an insufficient one.

1974. *Sir Philip Gibbs:* I am afraid some of my questions will be rather scattered and not on a general line of argument; but there was some mention of your having financial interest in Japanese firms which are making munitions of war, and so on. Would Vickers get further prosperity if there is an enlarged naval programme adopted by the Japanese Government.

Sir Herbert Lawrence: In so far as the firms in question are concerned, in that respect the only advantage to Vickers would be a possible dividend from their interest in that concern, which is not a big interest.

1975. *Sir Philip Gibbs:* But you would actually get some financial advantage from a very big naval policy in Japan?

Sir Herbert Lawrence: Certainly.

1976. *Sir Philip Gibbs:* You say in your statement regarding foreign trade: "It is unquestioned that all armaments"—all British armaments, you really mean—"and particularly ships of war constructed in this country, are in demand universally"; that is to say, you claim that the standard of British production is so high that when your firm produces something it leads really to a universal demand?

Sir Herbert Lawrence: Yes.

1977. *Sir Philip Gibbs:* That, you see, rather adds to the argument I am trying to follow, that increased efficiency of design also leads to an increase in the efficiency of slaughter between one nation and another.

Sir Herbert Lawrence: I think really the inference I meant to be drawn from it was more in this direction. Take, for instance, as world competition, the supply of ships of war for the Argentine for the purposes of argument. Our design and our work is so good that we stand very good chances of getting the contract, unless some other state is subvented by its own government. In fact, I think the work is so well known all over the world that people like to come here to get the work which is required; but that is all.

1978. *Sir Philip Gibbs:* Yes. You do rather admit in the last paragraph of Statement No. 2* that there is a possibility of abuse. You say that if armament exports are unchecked, the possibility of abuses will inevitably continue to cause anxiety and so perpetuate general disquietude.

Sir Charles Craven: That I think has not been read yet, Sir.

Sir Herbert Lawrence: That is *apropos* of the licensing system?

1979. *Sir Philip Gibbs:* Yes. May I ask you what kind of abuses you had in your mind, your own mind, when you wrote that paragraph?

Sir Herbert Lawrence: I simply say, in a previous part of that memorandum, that you will get all sorts of—

1980. *Chairman:* You are referring to the supply to irresponsible hodies, or irresponsible people?

Sir Herbert Lawrence: Yes.

1981. *Sir Philip Gibbs:* What kind of people did you have in mind when you wrote that paragraph?

Sir Herbert Lawrence: Well, all sorts of people who are quite immorally providing arms over a period to people like slave raiding countries, and countries of that kind. There has always been a great deal of criticism of what has been done in that way in the past, and I think that if you have a lot of small people whom you cannot control, that trade might spring up again. That is what I had in mind.

1982. *Sir Philip Gibbs:* You do not think it applies at all to Vickers?

Sir Herbert Lawrence: Impossible.

* See p. 371.

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1983. *Sir Philip Gibbs*: You do not think such places would enter into the public relationships of Vickers themselves?

Sir Herbert Lawrence: I think it would be quite impossible.

1984. *Sir Philip Gibbs*: Forgive me for pressing this point, but take for instance the Chaco war. The report by the League of Nations manifested the fact that this war between two very primitive peoples was becoming very highly mechanised and that they were being provided with all the most modern forms of destructive weapons, which came not only from America but from European countries. Would it be fair to ask you if your firm had contributed to those weapons?

Sir Herbert Lawrence: Oh, yes, we supplied them to Bolivia; but the contracts for most of that work were made a long time before the war. I can give you the whole details of the contracts.*

1985. *Sir Philip Gibbs*: I think, as a matter of fact, the delivery of goods increased actually during the process of the fighting?

Sir Herbert Lawrence: I do not think so, Sir. There was a certain amount of artillery provided. Some material was delivered during the war, but there were considerable delays because they would not take delivery of certain things, as not being sufficiently up to specification, and they had to be adjusted. The main contracts were some time antecedent to the war. I can give you the details of them.

1986. *Sir Philip Gibbs*: Thank you very much. Of course, that is to some extent an admission that a great firm like Vickers does supply these primitive peoples with very modern forms of slaughter? It provides them with a means of slaughtering each other?

Sir Herbert Lawrence: I do not think those people would admit that they are very primitive, really.

1987. *Sir Philip Gibbs*: Not the Bolivians and the Paraguayans?

Sir Herbert Lawrence: No. I had more in my mind a sort of slave trading business, that was conducted at one time, or the importation of arms into Arabia and Africa, which was pretty bad at one time, I imagine.

1988. *Sir Philip Gibbs*: Going to quite a different point, you added a supplementary statement with regard to Sir Basil Zaharoff, in which you said that he had had no kind of connection with the Vickers firms since 1924; but as a matter of fact in the American evidence before the Nye Committee, as it is called, there is the letter from Sir Basil Zaharoff dated in 1925. It is Exhibit No. 31, on page 336 of Part I of the Committee's Proceedings. The letter is dated the 19th May, 1925—that is, a year after the date upon which you mentioned his having ceased to be associated with the firm—and he says: "I deserve no thanks for what I have done, because I am bound to attend to the interests of my firm of Vickers and of my friends, the Electric Boat Company, in both of which I am a shareholder". Of course, that is going back some time in history, but you started your historical survey by going back as far as 1867, and therefore perhaps you will think I am justified in going back as far as 1925. In the popular imagination of the world there is no doubt that Sir Basil Zaharoff is regarded as a very sinister figure stalking through the Courts of Europe and acting as an agent for the sale of munitions of war. May I ask you what was his exact position with regard to the firm of Vickers?

Sir Herbert Lawrence: Prior to 1924?

1989. *Sir Philip Gibbs*: Prior to 1925. He was still acting in your interests in 1925?

Sir Herbert Lawrence: Only in regard to the Spanish business.

1990. *Sir Philip Gibbs*: Well, he uses the words, "my firm of Vickers."

Sir Herbert Lawrence: Have you ever met Sir Basil?

1991. *Sir Philip Gibbs*: Only just casually.

Sir Herbert Lawrence: He is rather an expansive person, and talks rather at large.

1992. *Sir Philip Gibbs*: Was he, as a matter of fact, at that time one of your agents?

Sir Herbert Lawrence: Yes, he was our agent.

1993. *Sir Philip Gibbs*: A specially appointed agent?

Sir Herbert Lawrence: Yes, for Spanish business.

1994. *Sir Philip Gibbs*: But previously to that, was not he also your general agent?

Sir Herbert Lawrence: I really do not know. He brought in a vast amount of business to Vickers, I know that, probably 20 years before that.

1995. *Sir Philip Gibbs*: But would he have been officially recognised as one of your agents? I mean, would he have signed an agreement with your firm? He must have done, of course?

Sir Herbert Lawrence: I do not think so. I should say certainly not. I do not think he was ever accredited in any sense by a signature of the firm.

1996. *Sir Philip Gibbs*: But in order to draw his commission, and so on, you would have had to have a formal agreement with him?

Sir Herbert Lawrence: I think he would have, probably. I have no knowledge of it.

1997. *Sir Philip Gibbs*: Would you like me to question Sir Charles Craven upon that matter?

Sir Herbert Lawrence: Certainly. There is an agreement now with him simply for Spanish business, and providing him with office staff, and a commission on that business; but nothing has happened to it for some time.

1998. *Sir Philip Gibbs*: Some question was raised with regard to your advertising in the Press, of which you will have the figures, but I want to ask you an additional question. Has Vickers any financial interest in any of the English newspapers?—

Sir Herbert Lawrence: Absolutely none, of any kind.

1999. *Sir Philip Gibbs*: You are quite sure of that?

Sir Herbert Lawrence: Except for the report of the annual general meeting, and that sort of thing.

2000. *Sir Philip Gibbs*: I do not mean that. Do you hold shares in any of the English newspapers?

Sir Herbert Lawrence: Absolutely nothing.

2001. *Sir Philip Gibbs*: It was suggested by one of the witnesses who came before us—he was by name of Pollitt—that Vickers had appointed a number of *The Times* correspondents as their agents abroad. Is there any truth in that?

Sir Herbert Lawrence: None. Those gentlemen whom he referred to—I have seen his statement—were employees of the people who represented us in certain capitals of Europe. We try to appoint people of considerable position and eminence in each place, and, failing that, we generally ask the local government if they can advise us as to somebody to appoint. Apart from that, their office arrangements are entirely their own.

2002. *Sir Philip Gibbs*: It is rather curious that correspondents of *The Times* should be selected. I take it that that is so. Is that so, Sir Herbert?

Sir Herbert Lawrence: Sir Charles will be dealing with that matter.

2003. *Sir Philip Gibbs*: Is it the fact that there were agents appointed who were also correspondents of *The Times*?

Mr. Yapp: There are two cases, as far as I know. One is the case of a Mr. Bryce, and one of Mr. Boncesco.

* See Appendix 15, p. 425.

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2004. *Sir Philip Gibbs*: And there was another gentleman too. There are three of them?

Mr. Yapp: As far as I know, Mr. Bryce was a correspondent of *The Times* newspaper before the fusion of Vickers and Armstrongs, but that had nothing to do with the appointment of agent.

2005. *Sir Philip Gibbs*: But it was done with your knowledge?

Sir Herbert Lawrence: What was done with our knowledge?

2006. *Sir Philip Gibbs*: The appointment of Mr. Bryce.

Sir Herbert Lawrence: To *The Times*, do you mean?

2007. *Sir Philip Gibbs*: No; the fact that he was a correspondent of *The Times* was known to you when he was made your agent?

Sir Herbert Lawrence: No, as far as I am aware it was not.

2008. *Sir Philip Gibbs*: Would it not have been necessary for you to have had his credentials?

Mr. Yapp: Mr. Bryce was a member of a company. It was the company which held the agency in Yugo-Slavia. Mr. Bryce was a member of that company, and Mr. Bryce personally was for a period a correspondent of *The Times*.

2009. *Professor Gutteridge*: Is he the gentleman, who utilised his typist to do all the work for *The Times*?

Sir Herbert Lawrence: Oh, no.

Professor Gutteridge: There was one of them who did, I believe.

2010. *Sir Philip Gibbs*: May I ask you whether the firm of Vickers made a loan at any time to Roumania for the purposes of buying munitions of war?

Sir Herbert Lawrence: Never. We have never made any loan to Roumania of any kind whatever, either direct or indirect.

2011. *Sir Philip Gibbs*: Because there is a statement in the *Manchester Guardian*—I am sorry I cannot give you the exact date—which states that a loan was made to Roumania, and the question was whether Vickers were repaid for the delivery of arms in Roumania, where English merchants had to cut a great amount of the moneys due to them, owing to the failure of the Roumanian Government.

Sir Herbert Lawrence: That story might have arisen from this fact, that the Roumanian Government after the War wanted to start the manufacture of arms themselves in government factories, and they asked us for our technical advice, and also for machinery. We sold them a considerable amount of machinery which was not required at our works, and at works which had been closed down here. They could not pay us, and we took shares in the company which they formed in place of it—in place of the money.

2012. *Professor Gutteridge*: That was the Copsa Mica?

Sir Herbert Lawrence: Yes.

2013. *Sir Philip Gibbs*: Thank you very much indeed. I think I will reserve my other questions for Sir Charles Craven, as they are rather more on matters of detail than of general policy.

2014. *Sir Thomas Allen*: In paragraph 2 of Statement No. 1* you say: "If the manufacture of arms is to be a function of the State, the State will have to keep large plants in being without having the advantage of supplying an export trade". We have been told in one connection that the export trade in arms is possibly the most lucrative part of the business. Why should the State in the event of national monopoly not have the advantage of this trade?

Sir Herbert Lawrence: I think that is more a political question than a commercial one. I do not

know if any state responsible for its own manufacture would also be prepared to manufacture for foreign countries. I should have doubted it. However, it is a matter of opinion.

2015. *Sir Thomas Allen*: But you would not preclude a state from doing a business which private enterprise now regards as legitimate and necessary to be done?

Sir Herbert Lawrence: Not necessarily, of course, but one would have thought, perhaps through experience, that it was inconceivable. I may be quite wrong. It is really an expression of opinion.

2016. *Sir Thomas Allen*: But there are many non-producing countries to which arms would be essential in any view?

Sir Herbert Lawrence: Certainly.

2017. *Sir Thomas Allen*: And there is no reason why a government producing nationally should not produce for those countries an essential commodity?

Sir Herbert Lawrence: Might I submit to you that that is the very argument that is being used by those who advocate peace at any price against the armament firms.

2018. *Sir Thomas Allen*: I know that that has been so, but while war organisation is essential to any nation there is no reason why, under a national system, a state should be precluded from doing what private enterprise does. That is my point.

Sir Herbert Lawrence: Certainly.

2019. *Sir Thomas Allen*: In the same paragraph of your statement you say: "In order to be in a position to pass rapidly from a peace-time to a war-time production, it will have to manufacture on a scale far higher than is normally required". If the state supplied all its requirements, it would naturally manufacture some at present and keep, I take it, plant accordingly. Why should the state monopoly affect the position any more than under the present system? You told us just now that you produce to order—that is, to the order of the state requirements.

Sir Herbert Lawrence: What I had in mind there was this. In the event of the state being the sole supplier of certain types of arms, they would have to keep a very considerable staff in existence and to employ them, and in order to employ them they would have to produce much larger quantities than a private firm has to do, because the private firm's business needs surplus employees either for foreign work or for commercial work.

2020. *Sir Thomas Allen*: In the same paragraph you say also: "After a prolonged peace, most of its production would be obsolete".

Sir Herbert Lawrence: Well, take matters like ammunition for field artillery, and a variety of stores that one can think of. That would have to be manufactured in excess of the actual consumption, year by year. You would be gradually accumulating vast quantities of stores which after a number of years would become completely obsolete.

2021. *Sir Thomas Allen*: Why so? Why would that be necessary?

Sir Herbert Lawrence: Do you mean necessary to accumulate?

2022. *Sir Thomas Allen*: Yes.

Sir Herbert Lawrence: Because you have got to keep the people employed. We employ our people because they are not only required actually for the armament work, but for a variety of similar commercial work.

2023. *Sir Thomas Allen*: Your point being that the Government would be obliged to manufacture above requirements, under a state system?

Sir Herbert Lawrence: Certainly.

2024. *Sir Thomas Allen*: It has been suggested to us that under a state system a reserve of plant to ensure the opening out of general possible requirements if war occurred, would obviate the necessity of accumulating stocks. You would simply have your plant ready.

* See p. 347.

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Sir Herbert Lawrence: For extensions?

2025. *Sir Thomas Allen:* Yes.

Sir Herbert Lawrence: There I have to be careful as to what I answer, because it is a matter on which I think, if you asked the Defence Forces, I mean the Army and Navy, what has occurred in industrial establishments, they would be able to tell you what has been done under that scheme, and I do not think I am at liberty to talk about it.

2026. *Sir Thomas Allen:* Do you think that in order not to necessitate the accumulation of stocks it would be practicable to have this plant ready and workable at a given time of emergency?

Sir Herbert Lawrence: Under a government control do you mean?

2027. *Sir Thomas Allen:* Yes.

Sir Herbert Lawrence: But you would not have the men. You might have the plant, but you would not have the men. The plant is expensive to keep up, but you might have the plant; but you might not have the men.

2028. *Sir Thomas Allen:* But all plant necessary for production has to be kept up somewhere at the present time. Is it your point that your plant can be taken over to some other productive purposes?

Sir Herbert Lawrence: Not the armament plant. The armament plant is kept in existence and going by simply (a) our supply to the Defence Forces here, and (b) our supply to foreign countries. The two combined keep our armament plant in fairly good condition.

2029. *Sir Thomas Allen:* But if there are no orders, the plant is idle, and that would apply to a state plant?

Sir Herbert Lawrence: Yes. For example as far as the steel plant is concerned, certain portions can be turned over to commercial steel for passenger ships.

2030. *Sir Thomas Allen:* In paragraph 3 of Statement No. 1 you say: "State manufacture is traditionally unenterprising and there will always be a tendency to be satisfied with conditions which may be expected to 'last my time'." Would you elaborate that point a little for us?

Sir Herbert Lawrence: I think there is no particular inducement. The arguments are common to all state enterprises, I think. It depends on whether you believe in a national system of administration of commercial businesses or not. I do not think that any of the great inventions of the last 100 years would ever have been heard of if you had had a purely national system or a system which depended purely on a democratic vote. Probably a democracy would have voted against any single one of the inventions which have improved life in the last 100 years.

2031. *Sir Thomas Allen:* Do you say that state monopoly would never pay as a business proposition?

Sir Herbert Lawrence: I think it is extraordinarily difficult to see how it is going to, personally. It might prosper in some countries, but not in a country like this, which has got to compete with world prices. I do not conceive it to be possible.

2032. *Sir Thomas Allen:* But it proved to be possible in war time. It has been advanced to us that in so far as the state is unenterprising, the main reason is the constant pressure of private manufacture on the three Services which otherwise would go to Government workshops, and that this has tended to reduce their efficiency, especially so since the War. Do you in any way bring pressure upon the Government for orders in order to keep your plant working?

Sir Herbert Lawrence: No, we have no power to bring any pressure.

2033. *Sir Thomas Allen:* Then you go on to say that under state manufacture there will always be a

tendency to be satisfied with conditions which may be expected to "last my time." Is not that in itself a reason why there is no enthusiasm for a change over from the present dual system to state responsibility, and really affords an argument against that system?

Sir Herbert Lawrence: Against private manufacture, or against state manufacture?

2034. *Sir Thomas Allen:* Against state manufacture.

Sir Herbert Lawrence: I think it is an argument.

2035. *Sir Thomas Allen:* Against state manufacture?

Sir Herbert Lawrence: Yes.

2036. *Sir Thomas Allen:* Your argument against state manufacture is contained in paragraph 3 of Statement No. 1 where you say: "In private manufacture there is the restless activity which derives from competition." You have already dealt with this competition point in answer to previous questions, but it does seem to us that this restless activity of private manufacture has been more in the direction of eliminating each other as manufacturers and therefore, naturally, the elimination of competition. In reply to a question put recently in the House of Commons the answer given was that there were fewer firms in existence for the purpose of manufacturing arms than in 1914. That is so, I take it, by reason of the amalgamations that have taken place?

Sir Herbert Lawrence: Yes.

2037. *Sir Thomas Allen:* Could you say there is any really effective competition in the armament trade at the present time?

Sir Herbert Lawrence: In this country?

2038. *Sir Thomas Allen:* Yes.

Sir Herbert Lawrence: No, I should say there is practically none.

2039. *Sir Thomas Allen:* Then in paragraph 3, coming to the point of the question which was raised by Sir Philip Gibbs, you say: "It was the genius of Sir A. Noble and his staff at Elswick which drove the Government to equip the Army with rifled ordnance and breach loading mechanism, after they had supplied numerous foreign countries." Is that a good reason really for supporting one enterprise, or for sustaining the element of competition, to supply countries abroad, and then make that a good reason for driving the Home Government to give orders for similar equipment?

Sir Herbert Lawrence: It would be surely natural that this country should not be worse equipped than other countries in respect of an invention of that kind. It would be like this country contentedly going to war with a muzzle-loading gun against a man who had a repeating rifle. It was the fact of Sir Arthur Noble's invention and that it was adopted by foreign countries, which did make this Government at last take up the question.

2040. *Professor Gutteridge:* I do not know if you can tell me, but I believe the first man who invented a breech-loading rifle was a German?

Sir Herbert Lawrence: Yes, I believe so.

2041. *Professor Gutteridge:* The breech-loading, I think, was not a British invention, was it?

Sir Herbert Lawrence: No.

2042. *Sir Thomas Allen:* Then there is a statement in the fourth paragraph, and does it not resolve itself into this, speaking of competition, that such competition as does exist between purchasers is really competition to create an atmosphere amongst governments to create demand?

Sir Herbert Lawrence: I think that must be a matter of opinion. I do not think so myself.

2043. *Sir Thomas Allen:* If this is a correct reading of it, is it not a very strong reason for abolishing the present system in respect of salesmanship?

Sir Herbert Lawrence: I do not know that that follows.

(Adjourned for a short time.)

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On resuming:—

2044. *Sir Thomas Allen*: Still on Statement No. 1, paragraph 5, you say: "The Dockyards and Arsenals belonging to the State are no doubt very highly efficient, but in the event of war they could not do much more than keep abreast of repair work". I take it that adequacy in wartime depends really upon planning in peace time, and preparedness would apply equally to private manufacture as to the State, would it not?

Sir Herbert Lawrence: What I meant to imply there was that the existing factories which are under the control of the State could not do more than repair work in case of emergency, that their whole capacity would be occupied in repair work and not in fresh construction.

2045. *Sir Thomas Allen*: I take it that, in the event of the State deciding to nationalise, it would be upon an arranged plan, that they would be efficiently equipped for the work they would have to do in wartime.

Sir Herbert Lawrence: I presume so. Which would involve the taking over of our existing establishments, of course.

2046. *Sir Thomas Allen*: Yes, and providing other establishments. Following up the question put by Sir Kenneth before lunch: In paragraph 5 you say, "The State can, as long as private firms exist, fall back on them to supplement their normal production. The Government could do what was done in the last war with the railways—namely, take over the whole business as a going concern". I take it from your reply to Sir Kenneth that you raise no objection to a procedure of that kind. My point is this: If this is a good policy or a necessary policy in wartime, why not obviate the waste by not having to make it?

Sir Herbert Lawrence: By taking it over in peace-time?

2047. *Sir Thomas Allen*: Yes, that is the inference.

Sir Herbert Lawrence: The only objection to that—it is an objection from the State's point of view, not from my point of view—is the expense.

2048. *Sir Thomas Allen*: The expense?

Sir Herbert Lawrence: The cost.

2049. *Sir Thomas Allen*: We will, perhaps, come to that a little later on. In the sixth paragraph, you say "... when we, that is Vickers-Armstrongs, Limited, are considering the term 'armaments,' we do not think in terms of shells. . . . but we think in terms of the more advanced and complicated type of armaments." There are two things I would like to mention there. First of all, you did take orders for shells; we were told by Dr. Addison, I think, that Vickers and Armstrongs between them took orders for £1,927,000 worth of shells, that they delivered £543,000 worth, and that there were arrears of £1,384,000. While you were not thinking in terms of shells, you did take orders, and failed to deliver the goods. That is the first point. The second point is, that the tables submitted by Dr. Addison showed that the private firms generally, not only yours, were just as far behind in their promises of delivery in respect to machine guns and fuses as they were with respect to shells and cases. Is that correct?

Mr. Yapp: I am not sure that it is. I cannot answer definitely. I do not know that any definite promises about delivery of shells were made.

Sir Thomas Allen: Have you seen Dr. Addison's tables?

Mr. Yapp: I have seen Dr. Addison's statement. He does refer to definite promises having been made to deliver shells and certain other things in definite times. I am not quite sure that that is a correct statement.

2051. *Sir Thomas Allen*: You do not dispute it?

Mr. Yapp: I do not dispute it, but I think it is very much more likely that we were told that that was what they would like us to do and we said that we would do our best to do it. But you must

remember that we had so few orders for those shells before the War, and for machine guns, that we were not in production in any real sense of the word.

2052. *Chairman*: With reference to that point: We have been told that those orders, or the bulk of them, were given as a consequence of your people and some others who were present saying, "We cannot promise, but we will do our best." We have had that evidence, have we not?

Sir Thomas Allen: Yes. Only, that they did take the orders.

2053. *Chairman*: And Dr. Addison said they were written orders.

Mr. Yapp: Oh! yes, definite orders were received for the manufacture of shells.

2054. *Sir Thomas Allen*: In "B. VICKERS GROUP—BRIEF HISTORICAL SURVEY" you refer to the writing down of share capital. Was this attributable in any way to loss on armament production or to outlay in providing for or extending production in war-time emergency? I ask that for this reason. Sir Stanley von Donop, when he came before us, said that in October, 1914, a Committee of the Cabinet called upon the English armament firms to produce larger quantities than were already arranged, and that they were given a free hand as regards cash to set up plant and buildings. I was wondering whether you put that statement in as justification for any loss on armaments.

Sir Herbert Lawrence: No, it is not put in for that.

2055. *Sir Thomas Allen*: You do not attribute it to that at all?

Sir Herbert Lawrence: No. An allowance was made in the final adjustment of the accounts for excess profits duty.

2056. *Sir Thomas Allen*: I want to get it clear, because we have been assured again and again by various statements that have been made to us that every extension was paid for directly or in an agreed price for the munitions to cover any expenditure that might be necessary for undertaking this Government work.

Sir Herbert Lawrence: It was not done entirely in that way. When the final adjustment for E.P.D. was made that was taken into account. 2057. *Sir Thomas Allen*: In Statement No. 2, paragraph 5, you say: "An organisation such as that referred to above"—that is, Vickers—"is dependent upon the highest classes of engineering employment, both military and commercial." Is there anything peculiar to armament firms in this respect which is not common to other great firms not engaged in armament manufacture?

Sir Herbert Lawrence: Only in so far as nearly all military and naval production is a very high class of manufacture both in steel and in design. It is quite a speciality of its own.

2058. *Sir Thomas Allen*: In paragraph 6 you refer to facilities for design, etc. You say they "must all be available instantly, and capable of immediate practical development." Would you say that that is the state of your position now, in the event of an emergency, or was it the state?

Sir Herbert Lawrence: Yes.

2059. *Sir Thomas Allen*: I pass to the second paragraph under "Costs" in Statement No. 2. Another side of this picture was shown to us—I think by Dr. Addison—in this respect, that dependence by Government Departments on selected firms led to private inflation, and that knowledge of that dependence resulted in a fairly tight armaments ring and price understanding among the firms concerned. I think we have got that fairly well out in the morning discussion. You have nothing further to say upon that, I suppose?

Sir Herbert Lawrence: No.

* See p. 348.

† See p. 371.

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2060. *Sir Thomas Allen*: On the same page, under "Foreign Trade"—"the abolition of private manufacture would entail the loss to this country of an export of considerable importance with corresponding injurious effect on employment." We have been told that half the world's exports of munitions was made by Great Britain. Is that anything like the fact?

Sir Herbert Lawrence: Would you mind repeating that question?

2061. *Sir Thomas Allen*: We have been told that half the exports of armaments in the world is contributed by Great Britain. Do you know anything about that?

Sir Herbert Lawrence: I could not answer that question. I can tell you the proportion of foreign work which we do compared with our home work. We have given you that in one of the schedules which was asked for by the Commission.

2062. *Sir Thomas Allen*: You do not really know what the armament trade of the world is?

Sir Herbert Lawrence: No.

2063. *Sir Thomas Allen*: Is your point that the armaments trade is helpful and necessary to keep you in a competitive place in the markets of industrial and commercial production?

Sir Herbert Lawrence: Not so much commercial; but I would again refer you to that schedule. I am speaking from memory at the moment. You will see that during those five years the proportion of the foreign work which has been done by this firm is roughly about 30 per cent. of the whole that we have. That is a very considerable proportion. Of course that figure is largely made up of vessels of war of one kind and another—big and expensive things. The actual volume is not big; the cash representation of it is large.

2064. *Sir Thomas Allen*: I come to the point of redundant machinery which you would have in the event of a national monopoly. You say that machinery of the value of £22,300,000 would be rendered redundant in the event of a state monopoly. Is that the present value as shown in your balance sheet.

Sir Herbert Lawrence: It is the replacement value. It is the amount of money that you have to spend in order to create the machinery that is necessary, but it does not include goodwill, or anything else connected with the business at all.

2065. *Sir Thomas Allen*: Is that quite independent of writing down the £12,000,000?

Sir Herbert Lawrence: Quite!

2066. *Sir Thomas Allen*: Do you know what the total plant is in your balance sheet?

Sir Herbert Lawrence: It is such a tremendous group of companies that that would be very difficult to ascertain quickly.

2067. *Sir Thomas Allen*: My point is this: I have been totting up the figures of total production and, as far as I can make them, your turnover for 1934 for all purposes was £13,892,142, and on a succeeding page you show a specific production in armaments of £7,288,451 for the year, leaving commercial production at £6,603,691.

Sir Herbert Lawrence: Yes.

2068. *Sir Thomas Allen*: My point was this, that if we knew something of the balance sheet value of the total machinery it would help us with regard to the £22,000,000 figure.

Sir Herbert Lawrence: We will try and prepare something for you if you wish, but I think it would be very difficult to disintegrate. I can put it better in this way, that in certain factories—probably 100 per cent., or the vast majority, is purely armament work. In others—take Sheffield, which includes the English Steel Corporation—it is about 75-25, 75 commercial, 25 armament. And so it goes on through the various factories. At Barrow and Newcastle it is preponderantly armament; at Crayford and Dartford, it is almost entirely

armament. There is practically no commercial work there at all.

2069. *Sir Thomas Allen*: When you speak of replacement value are we to understand that depreciation has not been taken into account at all?

Sir Herbert Lawrence: Oh! it certainly has been taken into account.

2070. *Sir Thomas Allen*: Would it be too much to ask what is your rate of depreciation?

Sir Herbert Lawrence: It is what is allowed by the Inland Revenue for the purposes of ascertaining taxation, 7½ per cent.

Mr. Reid Young: 7½ per cent. on plant and 2½ per cent. on buildings, generally speaking.

Sir Herbert Lawrence: That is not the whole story. A great deal more is allowed than that.

2071. *Sir Thomas Allen*: More depreciation?

Sir Herbert Lawrence: We do not get relief from taxation in respect of it, but we allow more.

2072. *Sir Thomas Allen*: That is not my point. It does seem to me that if you depreciate at a rate of 7½ per cent. on a redundant value of £22,000,000 it is a very low rate of depreciation and would take longer to redeem in totality than by the ordinary business practice of wiping out machinery, say in ten years.

Mr. Reid Young: I think I might make it clear that the £22,000,000 figure bears no relation whatever to the book values of the plant. That £22,000,000 figure has been prepared by our engineers on the basis of putting in the place of the plant as it exists to-day a similar plant.

2073. *Sir Thomas Allen*: I did not ask you for the book values. What I asked you for was the balance sheet values.

Mr. Reid Young: The balance sheet values? It is the same thing.

2074. *Sir Thomas Allen*: The balance sheet values would bear no relation to the values of replacement?

Mr. Reid Young: No, none at all.

2075. *Sir Thomas Allen*: I come now to your Appendix 9.* On sales abroad, we have been told that the British Diplomatic Service has been used to secure orders. I think Mr. Newbold stated in his evidence (Questions 801 to 804) that firms are agents of the Foreign Office and are carrying out their policy as agents. Have you, in your own experience, any evidence of help or assistance having been given you by the Diplomatic Service in inducing other nations to give you orders?

Mr. Yapp: No.

2076. *Sir Thomas Allen*: I see that Sir John Simon, in answer to a Question in the House of Commons said practically that the United Kingdom Diplomatic Service assists British firms to obtain orders. You have not had that assistance at all in any way?

2077. *Chairman*: What we have been told hitherto is that where it has become common knowledge or has been advertised that foreign governments require certain—whatever it may be—then the representatives of this country in the particular place do their best to help them.

Mr. Yapp: Certainly they would; if we thought we were not getting fair treatment *vis-à-vis* our competitors we should certainly appeal to the Minister.

2078. *Chairman*: Then they do help?

Mr. Yapp: To that extent. That does not often happen.

2079. *Sir Thomas Allen*: The answer, I thought, indicated that assistance had never been sought.

Mr. Yapp: I would not say it had never been sought.

2080. *Sir Thomas Allen*: Are there any sales other than national undertaken by your firms abroad?

Sir Herbert Lawrence: To governments?

2081. *Sir Thomas Allen*: Yes.

* See p. 406.

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Mr. Yapp: No, except to foreign shipbuilders who may be building a hull for another country, and we may supply the armaments to them for ultimate delivery to another country.

2082. *Professor Gutteridge*: That would be within the knowledge of our government?

Mr. Yapp: That is all disclosed.

2083. *Sir Thomas Allen*: Coming back again to the totality of your production of armaments, I find an average sum of between £6,000,000 and £7,000,000 per year over the last five years. Would you not regard a £7,000,000 annual production of a commodity as good financial business to be undertaken by the state? Is it not big enough, or is it too big?

Sir Charles Craven: I do not know, Sir, that I can answer that question directly. That £7,000,000 may be £1,000,000 next year. If you had a guaranteed order for stuff every year for twenty years, yes; but you do not. What is going to happen to the state concern? I suppose I cannot ask you questions, but I draw your attention to the chart we put forward and the years following the War. A state factory would be shut.

2084. *Professor Gutteridge*: I think I am right in saying that in one year your armaments production was almost nil?

Sir Charles Craven: Yes.

2085. *Professor Gutteridge*: And I take it in that particular year you were supplanted by the state arsenal?

Sir Charles Craven: Yes.

2086. *Sir Thomas Allen*: It has been put to us that the cost of nationalisation would not really increase the cost of production to the government over the problematic period because the state already reimburse private firms for the whole of their charges incurred in maintaining private plant in the price paid for the commodity. Is there any truth in that at all?

Sir Herbert Lawrence: I say that is not true. It is definitely untrue.

2087. *Sir Thomas Allen*: My point is: If there is no truth in it at all—

Sir Herbert Lawrence: The state contracts are *ad hoc*, they do not bear reference to anything at all.

2088. *Chairman*: A suggestion has been made that the State is subsidising some firms now for maintaining their plant; but it does not apply to Vickers, I understand?

Sir Charles Craven: In one year, six years ago, a small subsidy was paid to the armour firms when no armour was ordered.

2089. *Chairman*: To your firm?

Sir Charles Craven: Yes, and the other two—to the three armour firms.

2090. *Professor Gutteridge*: How much was it, do you remember?

Sir Charles Craven: £60,000.

2091. *Chairman*: It was only done for one year in your case?

Sir Charles Craven: Yes: We have had nothing since then.

2092. *Sir Thomas Allen*: Under our present licensing system is it possible for component parts to be sent abroad for assembly to any firm with which you may have relationship?

Mr. Yapp: Is it possible, do you mean, within the limits of the licensing law?

Sir Thomas Allen: Yes.

Mr. Yapp: I should not think so.

2094. *Sir Thomas Allen*: Does the licence cover component parts?

Mr. Yapp: The licence covers components of all descriptions of armaments.

2095. *Professor Gutteridge*: What we were told by the Government Departments was that it covered component parts of everything except aeroplane engines.

Sir Herbert Lawrence: I think that is true.

2096. *Professor Gutteridge*: They said that aeroplane engines stood on a different footing, that nothing could leave an aeroplane factory without the Air

Ministry people knowing about it, because they had people on the spot, technical officers and inspectors.

Sir Herbert Lawrence: We do not make aeroplane engines.

2097. *Professor Gutteridge*: You only make the structure?

Sir Herbert Lawrence: Yes.

2098. *Sir Thomas Allen*: With regard to the convertibility of machinery, is it possible by any factor to convert any of this armament machinery to industrial purposes?

Sir Charles Craven: I think it is a very difficult question. There are certain machines that we should not have in our shops—machines, some of them, that cost £40,000—unless we were armament manufacturers. For a lot of their time they are used for machining large winders for the gold mines of South Africa.

2099. *Professor Gutteridge*: Have not some of them been used by Imperial Chemicals?

Sir Charles Craven: Yes, that is industrial.

2100. *Sir Thomas Allen*: I ask that question because it seems to me to be a rather important one from our national point of view. We have been told, for example, that in Germany all the new machinery that is being put down for industrial purposes is easily convertible for the purposes of munitions production. Do you know anything about that?

Sir Charles Craven: It is possible. I do not know.

2101. *Sir Thomas Allen*: Short of nationalisation, are you in favour of any system of control by the state that would help to minimise the objections alleged against private manufacture that have been put to us from time to time, and which you have no doubt read in the evidence that has come before us? Have you anything in your mind that, subject to the continuance of private manufacture, would give the public confidence and would remove any doubt with regard to the efficiency of our present system and prevent or minimise the alleged evils connected with the trade? It would help us to know if you are looking into the future and visualising the possibilities of what might be done. I do not know whether there is anything you can suggest to us, having in mind the continuance of private manufacture?

Sir Charles Craven: The only practical suggestion I have to make is that licences—

2102. *Sir Thomas Allen*: Before you answer: We have heard some evidence about a national central control board, to whom all the three Services would come, through whom all orders should be placed, and who should organise the industry in peace time, so that it would be prepared in the hour of emergency immediately to turn over to war-time production. Then we have had the American proposals placed before us with regard to licensing and other kinds of things. Are you familiar with that?

Sir Charles Craven: Yes, generally with the American proposals, but the only proposal that we would object to is international inspection. If it meant to say that international inspection was going to pry into every development we were trying to do, those inspecting government commissions would very soon be agents for firms in their countries.

2103. *Sir Thomas Allen*: Can you help us?

Sir Charles Craven: The only suggestion we have thought out is that licences should be licensed, that you should have to have a government licence to grant a licence to manufacture any of our products abroad. At the present moment every export is licensed, but the licensing is not licensed. I know of an instance where Mr. Yapp went to the Admiralty and got permission before we granted a licence to a foreign firm.

2104. *Professor Gutteridge*: You mean for certain of these components used for gun mountings on aeroplanes?

Sir Charles Craven: Take the anti-aircraft gun.

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2105. *Professor Gutteridge*: You licensed a foreign firm to make that gun?
Sir Charles Craven: Yes.
2106. *Professor Gutteridge*: And your point is that it might be advisable to get government authority before you grant the licence?
Sir Charles Craven: Yes.
2107. *Professor Gutteridge*: And that is not so now?
Sir Charles Craven: No.
2108. *Sir Thomas Allen*: Supposing the Government accepted all responsibility for receiving orders and sales generally, leaving private enterprise to manufacture, how would that work?
Sir Charles Craven: We should not get any orders. Government Departments move so slowly.
Sir Thomas Allen: That would mean state monopoly.
2109. *Professor Gutteridge*: Sir Herbert, may I ask you a question which springs from the last question? What, in your opinion, would be the effect on your business of a prohibition of export of arms to foreign countries? Would you still be able to carry on as an armament firm or not?
Sir Herbert Lawrence: I think undoubtedly it would hamper us to a very great extent. I think you have a return already before you which shows that that is something like 30 per cent. of our total production. Quite obviously, if you cut your production down by 30 per cent. it is a serious matter.
2110. *Professor Gutteridge*: Would it extinguish you as an armament-making concern? I am putting a purely hypothetical case. Supposing the Government said "We want you to make armaments for us but we do not want you to make armaments for the foreigner, therefore you must not export"?
Sir Herbert Lawrence: If the Government were to assure us a continuity of orders for a series of years—
Professor Gutteridge: I am assuming that.
Sir Herbert Lawrence: —it would replace others.
2111. *Professor Gutteridge*: May I put this to you: It has been suggested to us that it might be a desirable thing that publicity should be given to all orders placed with British armament firms for arms to be sent abroad. Would that publicity be injurious to your business, do you think?
Sir Herbert Lawrence: I think very few foreign orders would come to us under such terms and conditions.
2112. *Professor Gutteridge*: They would not care to place their orders if that were done?
Sir Herbert Lawrence: I think not. That must be a matter of opinion.
2113. *Professor Gutteridge*: What about publicity for licences? Would you object to that?
Sir Herbert Lawrence: You mean where the Government had given us a licence to export a, b or c?
Professor Gutteridge: Yes. Supposing they had given you a licence to export an anti-aircraft gun to Bolivia, for the sake of argument, would it harm you in any way if the details of that licence were to be made public?
Mr. Yapp: I do not think so.
2115. *Professor Gutteridge*: But the orderer, you think, would object?
Mr. Yapp: I think the customer would.
2116. *Professor Gutteridge*: That is what was in my mind—whether the foreigner would not object.
Sir Herbert Lawrence: I think he would.
2117. *Professor Gutteridge*: He can go to Germany or Switzerland and buy an Oerlikon gun where there would be no publicity.
Mr. Yapp: Yes.
2118. *Professor Gutteridge*: Let me take the anti-aircraft gun. There is a good deal of competition, is there not, in the anti-aircraft gun market, if there is a market for the anti-aircraft gun?
Sir Herbert Lawrence: Very large indeed!
2119. *Professor Gutteridge*: The Swiss make the gun?
Sir Herbert Lawrence: And the Swedes.
2120. *Professor Gutteridge*: The Abyssinians are using the Swiss gun?
Mr. Yapp: The Oerlikon gun.
2121. *Professor Gutteridge*: The Oerlikon gun. That is the one the Abyssinians are getting. And I suppose there is competition in warships?
Sir Charles Craven: Internationally?
2122. *Professor Gutteridge*: Yes. Is it keen?
Sir Charles Craven: Very!
2123. *Professor Gutteridge*: Now, Sir Herbert, if I may go on to another subject—do not answer this if you would rather not—am I right in thinking your view is this: That the problem of expansion in time of war is very largely one of man-power.
Sir Herbert Lawrence: Yes, undoubtedly.
2124. *Professor Gutteridge*: To turn to another matter: Do you subscribe to any of these so-called "patriotic societies"? I do not like the word "patriotic" society, but that is what they have been called—the Air League, the Navy League.
Sir Charles Craven: To the Air League we do; not to the Navy League.
- Sir Herbert Lawrence*: I know we do to the Air League.
2125. *Professor Gutteridge*: How much?
Mr. Reid Young: £250 a year, I think, speaking off-hand.
2126. *Professor Gutteridge*: That is a subsidy?
Mr. Reid Young: It is an annual subscription.
2127. *Professor Gutteridge*: What does an ordinary member pay to the Air League?
Mr. Reid Young: I think a guinea or two guineas a year. That is individual members.
2128. *Professor Gutteridge*: Is that the only amount you pay?
Mr. Reid Young: That is all.
2129. *Professor Gutteridge*: Do you assist in any other way?
Mr. Reid Young: In no other way at all.
2130. *Professor Gutteridge*: You do not subscribe to the Navy League, I think you said?
Sir Charles Craven: The Navy League would not accept a subscription from us. May I suggest you address the question to Sir Robert McLean, because he is chairman of the aviation company?
2131. *Professor Gutteridge*: I am reluctant to take up any more time than I can help. I happened to look at a book entitled *Merchants of Death* the other day and I see it is asserted there that Vickers is connected with a large number of firms none of which have been mentioned here—Brown Boveri, of Switzerland.
Sir Herbert Lawrence: The Italian company.
2132. *Professor Gutteridge*: Not the Swiss Company?
Sir Herbert Lawrence: No, not the Swiss Company.
2133. *Professor Gutteridge*: What is the Italian Brown Boveri? Is that an off-shoot of Vickers?
Sir Herbert Lawrence: No, it is an electrical company.
2134. *Professor Gutteridge*: Does it make armaments?
Sir Herbert Lawrence: No.
2135. *Professor Gutteridge*: Fokker Aviation?
Sir Herbert Lawrence: No.
2136. *Professor Gutteridge*: No interest. Pintsch, of Berlin?
Sir Herbert Lawrence: No.
2137. *Professor Gutteridge*: I have taken those names out of the book. I do not know anything about them. Nederland Engelsche Company?
Sir Charles Craven: Those are our Dutch agents.
2138. *Professor Gutteridge*: You have no shareholding in them?

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Sir Charles Craven: They are just an agency firm.

2139. *Professor Gutteridge:* Then there is another company, which is described as Polonaise Materiel de Guerre. Do you know anything about that?

Mr. Yapp: No, we have no interest in that.
2140. *Professor Gutteridge:* So with the exception of the trifling interest in the Italian Brown Boveri you are not in any way connected with any of those companies?

2141. *Chairman:* Is not Brown Boveri mentioned in the papers you have given us?

Sir Herbert Lawrence: It is shown in the investments. Our policy has for a long time past been to get rid of those investments. They are of no value to us.

2142. *Professor Gutteridge:* You will correct me if I am wrong, but I understood you to say that you were compelled in some cases to take shares in settlement of bad debts.

Sir Herbert Lawrence: Yes.

2143. *Professor Gutteridge:* I do not want to travel over the same ground again, but I gather you say you have no arrangements of any kind for the sale of armaments as regards Schneider or Skoda.

Sir Herbert Lawrence: Other than I have mentioned to you.

2144. *Professor Gutteridge:* Skoda?

Sir Herbert Lawrence: No, none.

2145. *Professor Gutteridge:* Nor with any of the German manufacturers?

Sir Herbert Lawrence: No.

2146. *Professor Gutteridge:* And that applies not merely to military armaments but to naval armaments and aircraft?

Sir Herbert Lawrence: No agreement of any kind.

2147. *Professor Gutteridge:* There are two other questions that I think I ought to put to you, as I think you are the responsible financial head of the firm. May I ask you this: It has been suggested to us—I do not quite follow it myself—that in some way or other where you have a factory which produces both armaments and commercial products the administrative expenses may in some ways be increased. Do you agree to that?

Sir Herbert Lawrence: No, I do not think so at all. I should think it is not true.

2148. *Professor Gutteridge:* I cannot quite follow the reasoning but I imagine the objection is that in some way you get double administrative expenses.

Sir Herbert Lawrence: No. In ascertaining the price to be charged for work for the Admiralty, for instance, the whole question of management charges is brought out; a certain percentage is allowed for the commercial side, a certain percentage is allowed for the armament side, and that is agreed by the authorities. There is no duplication. Those figures are disclosed to the Government.

2149. *Professor Gutteridge:* And in effect it does not cost the Government any more, you say?

Sir Charles Craven: No.

Sir Herbert Lawrence: Really it costs less, because the Government get the benefit of a certain amount of charge on the commercial side.

2150. *Professor Gutteridge:* I follow that. There is another point that perhaps might be put to you. It has also been suggested that in some cases armament firms like yours are linked with other firms producing raw materials and half finished products and that you disguise the profit made by the ultimate manufacture of Vickers by putting part of it on to the partly finished goods and the raw material which is the product of your associated companies. Is that so? "Cutting up the melon" I think it is called commercially, is it not?

Sir Herbert Lawrence: We do not make the raw material or the semi-manufactured raw material.

2151. *Professor Gutteridge:* The English Steel Corporation do, do they not? You see the idea—the

English Steel Corporation take this bit and then they pass it on to—

Sir Herbert Lawrence: Barrow or Elswick.

2152. *Professor Gutteridge:* . . . and you put so much per cent. on each time it moves, and you disguise the profit.

Sir Herbert Lawrence: There is no hidden profit. It is very strictly regulated, the price that one factory charges to another.

2153. *Professor Gutteridge:* Supposing you did that, would it be possible for the government investigator to discover it when the price-fixing takes place?

Sir Herbert Lawrence: Absolutely!

2154. *Sir Philip Gibbs:* I do not want to ask you any more questions, Sir Herbert, but I want to call your attention to what I think is a rather unfortunate phrase that you used in the first few lines of your statement this morning, in which you referred to "an honourable but perhaps mistaken ideal respecting the sanctity of human life and the iniquity of war." I want to suggest that that is an unfortunate phrase, which rather lays you open to criticism by your pacifist friends.

Sir Herbert Lawrence: I am quite prepared to admit, Sir Philip, that it is rather rhetorical.

2155. *Sir Philip Gibbs:* Do you not think it is rather unfortunate?

Sir Herbert Lawrence: I would not like to say that, because—you are cross-examining me on the point—I think the question of the sanctity of human life, which is one which appeals to every human being, every civilised human being, has sometimes been exaggerated, altogether to the disadvantage of certain other features of public life, and I think it is a pity it has been exaggerated in that sort of way.

2156. *Sir Philip Gibbs:* Do you think you can exaggerate the iniquity of war?

Sir Herbert Lawrence: I think you can, yes. I would take it to this point: There are certain people, for whom I have very great personal respect, who under no circumstances whatever would go to war or defend themselves. That is a very high ideal. It is not one with which I am in sympathy. I think it is a wrong appreciation of the existing conditions of life. Mr. Lansbury, for whom I have great respect, practises his ideal. I respect him for it; but I do not agree with it. I think he is wrong. That is all that I convey there. Not that I do not appreciate the value of human life. It is not that.
2157. *Sir Philip Gibbs:* It seems to me it lays you open to the criticism that you are under-estimating the iniquity of war, and it seems to me inconsistent with your statement at your last general meeting, when you said "Both the directors and the shareholders know to their cost the sorrow and suffering which war entails, the wastage of human life and material, the final loss which posterity has to bear, and the damage which is done to the economic structure of the world." You do not think there is any inconsistency between those two statements?

Sir Herbert Lawrence: No, frankly, I do not. I endorse every word I have put down. I do not think it is inconsistent.

2158. *Chairman:* I have one or two supplementary questions, please. The first is this: I ought to have asked it before. You are in favour of the licence system?

Sir Herbert Lawrence: Yes.

2159. *Chairman:* It has been suggested to us that it would be an improvement of the licence system if the orders when they were received by a firm should be licensed, that the firm should obtain a licence for the orders before they proceeded with the work, that it ought to be necessary to have the order licensed and not merely a licence to export. Do you see

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any business objection to that? I suppose in the majority of cases people ask beforehand whether they are likely to get a licence.

Sir Herbert Lawrence: What happens is this. Somebody offers us an order, or we apply for an order. If the order is given to us, before we begin the work, or accept it, we put it before the Board of Trade officials concerned.

2160. *Chairman:* Then it is only a matter of book-keeping to go a little further and say "You must have a licence". You quite agree to that?

Sir Herbert Lawrence: Yes.

2161. *Chairman:* The other question is about publicity. Considerable importance is attached apparently to publicity and that both the licence for the order and the licence for the export should be published, and the Professor put to you the question: What effect would publicity have upon your business? I would ask you to consider this other possible effect. One of the objections to the private manufacture and export trade in arms is that it is suggested there is a great deal of touting goes on and that an agent goes to Country A and says "Country B have given an order for an improved gun and you will find yourself in difficulty if you do not give me an order for a similar kind of gun" and that in that way the quantity of such armaments and arms is increased. Now I want to know what your view would be about publicity. Supposing there is to be publicity of these armaments, would not the effect upon various countries be exactly the same as if the tout had gone to them and said "So-and-so country has given an order", because it would be common property, and instead of one country ordering an improved gun perhaps half a dozen countries might do so? It seems to me the cure may be worse than the disease, if you have publicity.

Sir Herbert Lawrence: I think it is conceivable. It is very difficult to say what is the psychological effect of these movements. I think it might well be what you say.

2162. *Chairman:* From a business point of view I would like to know first of all what is your view. If that is likely to be the effect, it seems to me that you are creating another way of doing the very thing that people are complaining about.

I am requested to ask these questions: There are two to you, Sir Herbert, and one to Mr. Dunbar. The first is this: "Has Vickers Limited or its subsidiary companies any shareholding or interest in the Vickers Terni Company of Italy?" Have you any interest in the Terni Company, or is there a separate company.

Sir Herbert Lawrence: Not now; no, the Terni shares have all been sold.

2163. *Chairman:* When were they sold?

Sir Herbert Lawrence: We have been trying to sell them for a couple of years past. Nearly two years ago.

2164. *Chairman:* "If not, had Vickers any shareholding or any interest in this company in the past, and when did this interest and/or shareholding cease?"

Sir Herbert Lawrence: That was two or three years ago.

2165. *Chairman:* Had you a large interest in it? Is the company still in existence?

Mr. Reid Young: Not as Vickers Terni.

2166. *Chairman:* Is it under a different name?

Sir Charles Craven: Terni is the company to-day.

2167. *Professor Gutteridge:* It is something to do with the Orlando?

Mr. Yapp: It is a combination of the Italian shipyards and Terni.

2168. *Professor Gutteridge:* Orlando were competitors of yours?

Mr. Yapp: Yes.

2169. *Professor Gutteridge:* Armstrong-Pozzuoli went out years ago?

Mr. Reid Young: We held at one time shares to the nominal value of 4,200,000 lira out of an issued capital of 15,000,000 of the Vickers-Terni Company.

2170. *Chairman:* That has all been disposed of?

Mr. Reid Young: That has all been disposed of.

2171. *Chairman:* And your name no longer appears in connection with this company?

Mr. Reid Young: No.

2172. *Chairman:* You have never controlled that company, I take it?

Mr. Reid Young: No.

2173. *Chairman:* The other question is this: "Was there a provision in the former articles of association of Vickers, Limited, or a resolution of the company or of the board under which a percentage of the profits were to be distributed among the directors or certain of them?" I did not frame this question.

Sir Herbert Lawrence: In the old company, before the reconstruction in 1926, I believe there was something in the articles of association which permitted some percentage of profit to go to the managing directors.

2174. *Chairman:* That was in the old company?

Sir Herbert Lawrence: That was in the old company.

2175. *Chairman:* And before the amalgamation?

Sir Herbert Lawrence: Before the amalgamation.

2176. *Chairman:* "During the late War were certain sums paid under this provision to Sir Basil Zaharoff, and to some of the directors of Vickers, Limited? If so, how much, and to which directors were these payments made?"

Sir Herbert Lawrence: I have absolutely no record of anything of that kind at all. I do not know anything about it, Sir John.

2177. *Chairman:* That disposes of that. Now I ask this question of Mr. Dunbar: "Does Mr. Dunbar dispute the evidence tendered to the Royal Commission by the Union of Democratic Control (Days 7 and 8, pp. 197-198) with regard to the holdings of Vickers-Armstrongs and the English Steel Corporation in the Steel Manufacturers Nickel Syndicate?"

Mr. Dunbar: Not with regard to the holdings—certainly not, Sir. I think it would be well if you would allow me to say a word about the Nickel Syndicate.

2178. *Chairman:* Yes.

Mr. Dunbar: I would, first of all, like to emphasise that the Nickel Syndicate is by no means an international armaments ring, still less is it a sinister international armaments ring. It exists purely for the benefit to be derived from collective buying of nickel. It was formed 35 years ago, and was probably very wisely formed at that time, in view of the fact that there was only one source of supply of nickel and that was in French hands. An agreement was made with the French suppliers which assured supplies of nickel at reasonable prices and preferential treatment. In effect that state of affairs has existed ever since. In the evidence which was given by the Union of Democratic Control there was an inference, I take it, that some dark secret lay behind the acquisition of the former German shares. The Germans and the Austrians were shareholders and their shares during the late War were vested in the Public Trustee. The shares were £1 shares, 10s. paid, and were subsequently purchased by the Syndicate from the Public Trustee. They belong to the Syndicate as a whole. We still buy our steel under an agreement with the French company, Le Nickel. Le Nickel is now very closely linked up with the International Nickel Company—how closely and what their arrangements are we do not know, and it is not our business to know. We buy under a contract with the French company; but practically the whole of our supplies are of Canadian nickels refined in this country. During the last three years, speaking for my own company, less than one per cent. has been continental.

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2179. *Chairman*: Do you buy from the Syndicate?

Mr. Dunbar: The Syndicate does not actually buy. The Syndicate is simply a collection of firms who benefit from this joint agreement whereby they restrict their purchases to one source. It is no hardship because there is only one source of supply. In return they get a sliding scale rebate based on the total purchases of the whole group. Thus each individual firm qualifies for a higher rate of rebate than would be possible by buying individually.

2180. *Chairman*: What fixes the market price?

Mr. Dunbar: The market price is fixed by the suppliers, who are the International Nickel Company. The market price in this country is £200 a ton—everyone knows that—but the members of the Syndicate get a rebate on a sliding scale. The suggestion was made that that rebate was concealed from the Government. That is not so; that is incorrect. As a matter of bookkeeping, the rebate is treated as a direct credit to Profit and Loss. That is, I think, reasonable and accurate; because you will understand that until the end of the year the rate of rebate is not definitely known, but in any discussions that we have had with the Government Departments, it has been assumed that the full rate of rebate would be earned and the net price of the nickel has been included in our costing returns or estimate of the costs.

2181. *Chairman*: Thank you. There is another branch of the same question. "Is it one of the principal objects of the Steel Manufacturers Nickel Syndicate to supply to the shareholders of the company certain non-ferrous metals, raw materials essential for armament and other high grade steels?"

Mr. Dunbar: The answer is no.

2182. *Chairman*: The third branch is "Has the Steel Manufacturers Nickel Syndicate been supplying or financing the purchase of these raw materials or acting as the agent for the Italian Terni Company (a shareholder in the Steel Manufacturers Nickel Syndicate) during the present Italo-Abyssinian dispute?"

Mr. Dunbar: No. The Syndicate is not even in touch with Terni at the moment. Terni orders direct from Le Nickel in Paris, but for purposes of record they advise the Syndicate of what they are ordering. Since the present dispute started, I think I am correct in saying that they have not even advised them.

2183. *Professor Gutteridge*: Might I ask Sir Herbert a very short question that I omitted to put before? It has been suggested to me that it might be a desirable thing that British companies carrying on armaments business should include a clause in their articles of association limiting the holding of shares to British subjects. Do you think there is any point in that?

Sir Herbert Lawrence: That is a question which has been raised in the last 10 years in regard to certain definite companies.

2184. *Professor Gutteridge*: Yes.

Sir Herbert Lawrence: And arrangements were made by which foreign shareholdings should be taken over by a group. I think the danger of foreign shareholdings is exaggerated. I was a member of a small committee which attended upon the Treasury and the Governor of the Bank of England in regard to this very point, and my recollection is that we came to the conclusion that it might be desirable, but in the present situation there was no particular fear of this being a serious matter.

2185. *Dame Rachel Crowdy*: May I ask a question on this point—unless Sir Herbert feels that it should be asked later. I wanted very much to hear something about your sales organisation. Could you tell me anything about that, distinguishing between subsidiary companies, selling agencies and what are ordinarily called commercial travellers? Obviously, they fall into three sections. At the same time, could you give us roughly a list of the places where you

have permanent selling agencies and, again roughly, the number of commercial travellers or the number of agents that you have in your employ at the moment?

Sir Herbert Lawrence: You shall certainly have the information; Madam, but I would like you, if you will, to allow Mr. Yapp to reply. He is the head of the organisation which deals with the appointment and organisation of those gentlemen.

Mr. Yapp: I think, as a matter of fact, you have already some information with regard to our foreign agencies.

2186. *Dame Rachel Crowdy*: We have some information, but it is not a complete answer to this question, so if you would be good enough to answer it as far as you can at the moment, I should be very grateful, if you have these figures in your head.

Mr. Yapp: In most countries we have permanent agents. You are speaking of armaments and not of commercial products?

2187. *Dame Rachel Crowdy*: Yes.

Mr. Yapp: We have not any "commercial travellers" for armaments. We have a staff of officials in London who are partly technical, partly commercial, who go abroad in connection with definite armaments inquiries as required. Otherwise we have permanent agents in practically every country in the world.

2188. *Dame Rachel Crowdy*: As a person who travels a good deal, I come across your agents frequently—in the Far East, in Turkey, or wherever I may be—and that is why I am particularly interested in the subject because I have talked informally to them from time to time, and I wondered if you could give this Commission a general idea of the total strength of your permanent agents abroad.

Mr. Yapp: I can quite easily give you the number of our permanent agents abroad. They are set out in a book which the secretary has. As far as our staff in London is concerned, it consists of about six men.

2189. *Dame Rachel Crowdy*: I am more interested in your staff abroad than in your staff at home.

Mr. Yapp: I can give you those particulars immediately.*

Sir Herbert Lawrence: What happens is this. Supposing we are likely to get an order from Turkey or wherever it may be, one of our officers working under Mr. Yapp goes out from here and explains it technically to the agents.

2190. *Dame Rachel Crowdy*: One of your five or six men?

Mr. Yapp: Yes.

2191. *Dame Rachel Crowdy*: How do you remunerate your agents? Is it entirely by salary, or is it by salary and commission?

Mr. Yapp: It is by commission. Most of these questions are dealt with in our reply to your questionnaire.

Chairman: We have the form of agreement.

2192. *Dame Rachel Crowdy*: We have not the whole of the detail, Mr. Chairman. If it is by commission, what is the proportion of the commission expenses and what goes into the pocket of the man who gets your order for you? I am interested in the business as a whole, as compared with other businesses. Have you any definite proportion, or does it alter?

Mr. Yapp: No, we pay our agents a percentage of commission.

2193. *Dame Rachel Crowdy*: A percentage?

Mr. Yapp: Yes. But as to what part of that goes into his own pocket, or what he does with it, we have no control.

2194. *Dame Rachel Crowdy*: You pay their expenses in addition to the commission?

Mr. Yapp: No. In a few cases we do make an office allowance of £500 a year to our agents—I think that is the most we pay to any agent—to cover part of the expenses of his office, but beyond

* See Appendix 17, p. 430.

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that he gets nothing but the commission on an order.

2195. *Dame Rachel Crowdy*: Therefore any entertainment has to come out of his commission, really?

Sir Charles Craven: Yes.

2196. *Dame Rachel Crowdy*: And any "palm-greasing" has to come out of his commission?

Sir Charles Craven: Certainly.

2197. *Dame Rachel Crowdy*: Then again when your agents have to—I use the words "palm-greasing" because I can think of no other at the moment—when your agents have to resort to what is sometimes called bribery, handing a certain amount of money to a person in an official position in a country in order to get a contract—and one knows that is done very largely in South and Central America—how do your people distinguish between a bribe paid in the ordinary way, and a bribe which would induce the government to place an order which would not otherwise be placed with anybody? You pay your agents, and it is a very clear distinction, is it not?

Mr. Yapp: I really could not distinguish as to how they do it. I do not think our agent makes them a payment to induce them to buy something which they would not otherwise buy.

2198. *Dame Rachel Crowdy*: It would be a very unusual business, would it not, in certain countries, if money of that kind did not pass in order to get a contract? In every business which one knows anything of in certain countries one has to do that to get orders. I cannot think that arms are distinct in that practice.

Mr. Yapp: No, I do not think that arms are distinct from any other trade; but I have no knowledge of our agents having paid anything to any government—

2199. *Dame Rachel Crowdy*: Government officials; it is not quite the same as the government.

Mr. Yapp: —to government officials or anybody else, to purchase arms which otherwise they would have had no intention of purchasing.

2200. *Dame Rachel Crowdy*: But if it was a case of obtaining an order for your firm which might otherwise go to some other firm?

Mr. Yapp: Yes, I quite appreciate that.

2201. *Dame Rachel Crowdy*: In a case like that, how do you enter a sum of that kind in your financial returns? Does it come under charity, entertainment, or what does it come under?

Mr. Yapp: The agent has to do that. It is not a matter which enters into our calculations.

2202. *Chairman*: It comes out of their commission?

Mr. Yapp: Yes, it does not enter into our calculations at all.

2203. *Dame Rachel Crowdy*: They would find it difficult to pay out of their £500?

Mr. Yapp: That is only office expenses. Our average rate of commission, which we shall come to when dealing with the question later on, paid to our armament agents abroad for the last five years is 3.4 per cent. That is in a matter of fourteen foreign countries from whom we have received orders, the average rate of commission is 3.4 per cent.

2204. *Mr. Spender*: You say you do not solicit orders, and yet you pay your people only by commission. How can they earn commission unless they solicit orders?

Mr. Yapp: Well, orders are placed without any solicitation. If a government decides to buy ships for which orders are eventually placed, our agents try to get them, naturally.

2205. *Dame Rachel Crowdy*: Do you say no effort is ever made to make a country take war materials or aircraft that it would not take without a little giving from your agents or your representatives?

Mr. Yapp: I do not think so.

2206. *Dame Rachel Crowdy*: I am thinking for a moment of something which we had quoted from Sir Charles Craven: "I am trying to ginger up Chile."

Sir Charles Craven: Might I answer that question?

2207. *Dame Rachel Crowdy*: Yes, please do.

Sir Charles Craven: The Chileans had a naval programme consisting of six submarines. We delivered three of them, but the others have not been delivered because the Chileans could not afford to pay us what they owed us. That was the "ginger."

2208. *Chairman*: I think I am right in saying that we have had no evidence of any bribery to induce a government to give an order which it would not otherwise have given. I do not think we have had any direct evidence of it, but when an order is advertised and there are a number of firms competing for it, it does no doubt come out of his commission when the agent pays certain expenses.

Mr. Yapp: I do not think there is any question about that. I do not deny that for a moment.

2209. *Dame Rachel Crowdy*: Before lunch I asked a question, and I am afraid I put it rather badly, about what sum of money your firm spends on advertising, and Mr. Twentymann pointed out to me afterwards that you had given some figures which I had not noticed in my reading of your statements.

Sir Herbert Lawrence: Yes.

2210. *Dame Rachel Crowdy*: There were advertisements in 1932 of, I think, a tank and a machine-gun, and something else of that kind, advertisements which you inserted in a German paper?

Sir Herbert Lawrence: Yes.

2211. *Dame Rachel Crowdy*: At the time, as far as I know, the supply to Germany of arms was not allowed. I should like very much to get your explanation of that, because it is an accusation that has been made against you several times by various people who have given evidence here, that at a time when arms were not officially allowed to be given to Germany under the Treaty of Versailles, Vickers were advertising in that country that arms could be supplied. You yourself probably would be glad of an opportunity of replying to those accusations.

Sir Herbert Lawrence: I should like to answer that, because I was asked the question before. I regret that the advertisement ever was published in a German newspaper, but the reason for it was that the newspaper in question was the only one with a circulation in South America, where we were very anxious to establish contacts; and it also had a circulation in Northern European countries. But it had no reference to supplying Germany with arms themselves.

2212. *Dame Rachel Crowdy*: And no demand came from Germany?

Sir Herbert Lawrence: No.

2213. *Dame Rachel Crowdy*: And none was fulfilled?

Sir Herbert Lawrence: That is so. I may say that the advertisement was stopped at once. I saw the objection to it at once.

2214. *Dame Rachel Crowdy*: I am afraid I have still some questions, Sir John; I am sorry. They are not necessarily to Sir Herbert. If Sir Herbert wants to leave, I shall be perfectly satisfied to ask them of any member of his staff.

2215. *Chairman*: Sir Herbert, is it convenient for you to stay?

Sir Herbert Lawrence: Yes. For the moment I prefer to stay.

2216. *Chairman*: We have got now to go back to the statement. You are going to deal first of all with Statement No. 2, I think. I did ask some questions about it. You wish that read, I suppose?

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Sir Charles Craven: No, Sir. I do not know whether you wish it read. It will be published, will it not?
2217. Chairman: It becomes part of the record, and it has been supplied to everybody, so that unless you wish it read I do not think it is necessary.
Sir Charles Craven: I do not think so.

The following statement was taken as read:

STATEMENT No. 2

STATEMENT OF THE POSITION OF VICKERS-ARMSTRONGS, LIMITED, AS AN ARMAMENT MANUFACTURING FIRM.

The Group of Vickers-Armstrongs' Companies comprises several branches of activity, the main branch being armaments, especially of the heavy and highly specialised types. Among these are included heavy and light guns, transferable and non-transferable gun mountings, armour plate and bullet proof plate, fire control gear, torpedoes and torpedo tubes, ammunition, etc. The Vickers-Armstrongs Company is also the largest builder in the country of warships of all types, including their propelling machinery, and, in fact, is the only British Company capable of building a complete warship with its armour and armament.

In addition, the Group have a large commercial engineering business, including among its activities merchant shipbuilding (particularly high-class passenger shipbuilding), a highly developed steel industry producing especially the highest quality of alloy steels, the heaviest types of forgings, and drop-stampings as required by the aviation and motor-car industries. The Company also has a considerable capacity for the production of non-ferrous metals.

In the course of the ordinary fluctuations of business each of these industries may vary enormously in the receipt of orders. It is therefore an administration problem of great importance so to arrange a balance of work in order that overhead charges may be rigidly controlled and what is of even greater importance, that labour dislocation shall be reduced to a minimum, however the activity of the various manufactures of the firm fluctuate.

It must be remembered that the whole of this work, thus intimately interconnected, is of a very highly specialised character and demands specialised and highly trained labour. It is, for example, imperative that facilities for the training and experience of apprentices in the most accurate forms of engineering shall be provided in a steady stream, and this obviously can only be done if work is varied and well maintained.

An organisation such as that referred to above is dependent upon the highest classes of engineering employment, both military and commercial. If such an organisation were confined solely to the construction of armaments, there would be times when it would be necessary to close down due to lack of work. Reference to the chart* will show the situation which would have arisen at the Barrow Works of Vickers-Armstrongs (the largest works in the Group) if no commercial work had been available to meet the practical cessation of armament orders in the years following the War. Such a situation would disperse a highly technical organisation which it would be impossible to reassemble within a reasonable time, even if any form of skeleton nucleus, however highly trained, were retained.

War Time.—By War-time expansion is meant *very rapid expansion*; immediate repetition in large quantities of highly complex engineering structures. In the nature of things there is very little opportunity for preliminary preparation. Facilities for design, method of manufacture, technique, routine, procedure, must all be available instantly and capable of immediate practical development. It may be necessary to add structurally to an establishment, to provide for increased output, but the important point to notice is that in a Group such as Vickers-Armstrongs, by the very nature of the normal character of its activities the technical staff, trained work-

people, and equipment are to the greatest possible extent already available. Not only this, but existing complementary engineering and technical activities may be immediately modified to urgent and specialised requirements without involving new organisation.

The only nucleus which could have any value in such an emergency as war, or a crisis in national defence, is one of such magnitude as to ensure a smooth working organisation complete in every detail and practised in appropriate manufacturing processes. In other words, it requires trained and specialised personnel, in ordinary employment, where expansion would merely be a question of numerical addition to an existing structure. In this respect, it is important to realise that in a national emergency the private armament firms inevitably bear the brunt of immediate urgent demands. They are, as it were, the spearhead of the war-time production. It is impossible to assign too much importance to the question of war-time expansion. It is unquestionably the keynote of national defence.

In considering war-time expansion it should, of course, be understood that the Armaments products referred to above do not include the manufacture of Shell, other than Armour Piercing Shell. The manufacture of High Explosive, Common and Shrapnel Shell is only undertaken by the Company in peace time in order to ensure single responsibility for the supply of complete equipments, and for this reason Shell Shops of small dimensions are maintained.

It is considered that the mass supply of ordinary Shell in an emergency is not essentially within the scope of the expert Armament firms and provided that the design is correct and inspection is rigid, such Shell can be produced in any ordinary Engineering establishment with unskilled labour. It may perhaps be considered desirable that the Armament firms should equip a Shell Shop in the event of an emergency arising, but the only reasonable excuse for their doing so would be in order to absorb female labour in an outlying district where there were no other facilities for their employment.

Labour.—Vickers-Armstrongs and their Subsidiaries alone employ to-day approximately 30,000 people. This number is divided between a few important centres of which Barrow is the largest from an employment point of view. Barrow is an example of an organisation consisting of an Armament and Engineering Works and a Shipbuilding Yard. Such a comprehensive focus of industry is the centre of employment and activity for the whole surrounding area of several square miles. Apprentices are recruited largely from the sons of the workpeople and the organisation is such that promotion by merit is the central feature. Thus every stimulus is offered to the Staff to observe the most intense personal interest in the efficiency of the Works. The holders of the highest managerial posts are often recruited from the ranks of those who have been apprentices and so have lifelong experience and interest in the activities of the firm. Technical educational facilities are available for those who show marked ability.

It is obvious that a large works, dealing as its normal practice with an extremely accurate and specialised form of engineering, employs specialists in great variety, and as outstanding engineering specialisation is to be attained only by incessant

* See p. 373.

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practice and variety of experience, it is essential that work, having these characteristics, should be constantly provided. Experience in armament work by no means produces the arms specialist in any narrow sense, but obviously experience gained in that, the most exacting form of engineering, evolves the very best engineer and operative for passenger shipbuilding and high-class commercial engineering work. It is very largely because of this special training and experience of the Staff, that Vickers' products have acquired their high reputation throughout the world.

Such an organisation of employment as that outlined above would be impossible, if in times of scarcity of work, the Works had to be shut down. On the other hand, such drastic action would be inevitable if a large part of the work such as armaments, were removed from the realm of private enterprise.

Costs.—A comparison of costs of production as between a State-owned organisation and a private concern is one which presents very considerable difficulties.

To take as a case in point, Warship building; it is obvious that in a State-owned establishment where the State is able to provide sufficient work to maintain a steady and continuous employment, it is possible that in consequence a comparison of costs of production of such an establishment with those of a private concern might be found to show to the advantage of the State-owned concern. On the other hand, in the case of a private shipbuilding establishment which in addition to Warship building is able to obtain a reasonable amount of mercantile shipbuilding, the costs would be definitely lower than those of a State-owned organisation. Any private concern which is endeavouring to obtain a share of merchant shipbuilding must of necessity endeavour to keep its Standing Charges and production costs as low as possible in view of the very strong competition which it has to meet from other similar establishments, and it can be shown that Warships built in private yards, while yielding a reasonable profit to the builders, still cost the Country less than similar ships built in Government yards. It must, however, be borne in mind that in the case of Vickers-Armstrongs, which specialises in shipbuilding and other highly specialised forms of armament manufacture it is essential that a highly trained and efficient Staff and the most up-to-date plant and equipment should be maintained and on this account there is a tendency for Establishment Charges to be higher than in the case of a concern whose only interest is mercantile shipbuilding and/or general engineering. It is pointed out, however, that while commercial shipbuilding and engineering cannot make, under to-day's conditions, any very large contribution towards the necessarily heavy establishment charges incurred by the highly specialised forms of manufacture referred to above, the effect of such work is to tend to lower the charges which would fall to be borne by armament production.

It is pointed out that in regard to many of the large Government contracts, before prices are agreed in respect of the supplies involved, a thorough examination of charges, and of estimates of materials and wages is made by the Government Department concerned and care is taken by their investigators to see that a reasonable proportion of the Establishment Charges is borne by the commercial work.

Development and Research.—All branches of engineering, whether directed to the production of armaments or to any commercial engineering problem, depend vitally upon research. The results of research do not depend upon flashes of intuition; invention rather is the product of intimate experience of existing processes and sound foresight of future requirements, combined with technical ability of the highest order. It will be conceded at once that

stimulus to research and invention is most often the result of competition. It is the truth of these considerations which explains the fact that the vast majority of vital engineering inventions have had their origin in private enterprise. A very large number of examples might be quoted, but to mention only a few, we have the variety of special steels which are so essential, not only in Gun constructions but in every phase of engineering experience; the Parsons Turbine, the Diesel Engine, the Water-tube Boiler and, on the armaments side, Hydraulic Gun Mountings and the Automatic Gun. In the event of the State assuming the manufacture of all armaments, it may be argued that commercial competition would still exist and might suffice for progress in ordinary engineering problems, but nevertheless, progress in the specialised essentials of armaments is vital to our main consideration of National defence and security, and undoubtedly, the development of Marine Engineering in this country has been due to the collaboration between the Admiralty and the private firms, the joint experience being of the greatest value to the Marine Engineering Industry of the country. This is exemplified in the case of the *Queen Mary*, the machinery of which ship could not have been designed without the joint experience of the Admiralty as users of High Power Turbine Machinery and of the private firms as designers and manufacturers. Similarly, there is no doubt that the very heavy forgings of special Alloy Steel required by Imperial Chemical Industries for the new Plant at Billingham recently erected for the production of Oil from Coal by the Hydrogenation process could not have been manufactured without the accumulated knowledge of the three principal Forgemasters, which they could not have acquired but for their long experience in the manufacture and heat treatment of Special Armament Forgings. Therefore, it appears unwise to confide this matter of development and research to a purely national organisation which would be denuded of competition and the stimulus of continuous consultative collaboration with commercial engineering experts.

Foreign Trade.—If there was a State monopoly of armaments manufacture it follows that either the State would supply foreign countries with armaments, or foreign countries could not obtain them in this country. It is unquestioned that all armaments, and particularly ships of war, constructed in this country are in particular demand universally, this fact probably finding its explanation in the unique tradition and proverbial efficiency of the British Navy, and therefore the abolition of private manufacture would entail the loss to this country of an export of considerable importance with corresponding injurious effect on employment.

If the export of Armaments is prohibited, it would probably have the direct effect of multiplying armament organisations throughout the world and this would militate against the extension of any practical system of international control. Under the present system, the matter of foreign trade is one of importance and a factor of value technically and economically to the industry and to general progress.

In the first place, it keeps British firms in close touch with armament activity throughout the world in virtue of ordinary competition. Secondly, foreign orders are essential to provide that volume of work which helps to stabilise employment and to provide experience for personnel in specialised armament work, in those periods when, of necessity, the experience for personnel in specialised armament considerations primarily which contribute to the great value of foreign trade in a private armament works.

Owing to the particular demand for British armaments and particularly British warships, British armament Works and Shipyards certainly have enjoyed greater employment from foreign sources than those of other countries and it would be an economic

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loss if this precedence were lost. To quote a particular instance of the value of competition with foreign firms in defensive armaments, we may cite the case of Anti-Aircraft Defences, a matter in which many Governments are interested at the present time. If the British armament firms did not compete in this field, the potential loss in specialised experience to the country would be serious.

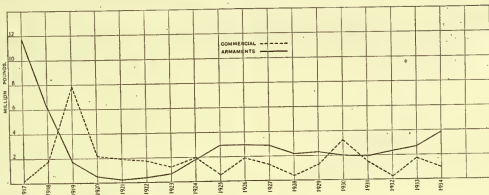
National Defence.—If armament firms are abolished, it is submitted that at one stroke we limit drastically the power of adequate expansion in the emergency of war. We limit development and invention in its relation to all branches of engineering activity, which may be so urgently necessary in general munition production. It follows that severe limitation of these three essentials is the very reverse of preparedness.

Experience during the late war demonstrated that a private armament firm is peculiarly adapted by its organisation for extremely rapid increase of output. The Vickers Barrow Works alone were responsible for the following numerical examples of urgently required armaments—4 Battleships, 4 Cruisers, 4 sets of Machinery for Cruisers, 6 Auxiliary Vessels, 53 Submarine boats of all types, 62 vessels for transport and river work; these together giving an aggregate displacement tonnage of something like 170,000 tons; 9 Airships and many associated forms of aircraft, together with something like 16,000,000 Shell, over 2,000 completed Gun Equipments and approximately 1,000 Limbers for Howitzer Mountings. This list is quite irrespective of the large number of modifications and conversions of armament supplies that were demanded with

extreme urgency. It is not practicable immediately to expand the national armament organisations so that they could satisfy the urgent demands to which they would be subjected, which demands unquestionably constitute the vital exigency of war. In the first place, it would be necessary to multiply, distribute and maintain in peace time in various industrial areas, the National Arsenal and Dockyards and to equip and staff them adequately. Dealing, as they would be, exclusively with armaments, there would certainly be long periods when they would stand idle. Machinery would deteriorate and become out of date and a standing staff of the necessary magnitude would prove an irksome burden on the National Revenue. Research and development would be very seriously hampered and the absence of foreign competition would militate against fertility in invention.

Allied commercial work, as we have asserted, absorbs a share of Establishment Charges in private organisations and what is of even greater importance, we have seen that it provides for that interaction of Staff, equipment, and supervision which enables armament work to be undertaken in the normal course, without the formidable initial charges which would occur from time to time if the work were intermittent. The relative amount of armament and commercial work which is carried out by a typical armament works such as Vickers-Armstrongs, Barrow, is shown in the following chart which covers the years 1917 to 1934. This chart illustrates the distribution of the work which is so important in reducing costs, maintaining adequate organisation and stabilising employment.

BARROW—ORDERS BOOKED.



Control of the Industry.—Unrestricted export of armaments to all potential purchasers might very definitely engender certain evils, such as brigandage and allied unlawful activity. Unrestricted export of armaments, therefore, while it would not have any appreciable effect on the business of reputable firms, might encourage the growth of small mushroom armament firms of doubtful standing, and so flood the market with inferior materials to the severe detriment of British industry and prestige. For this and other reasons Vickers-Armstrongs wholeheartedly support the present Licensing System in force in this Country.

This system is administered with vigilance in which Vickers-Armstrongs collaborate to the utmost of their power, in conjunction with the Defence Departments. In consequence, there is very little doubt that the system is effective in preventing any of the abuses which might conceivably result from inadequate supervision. In criticism of the system, the comment has been made that only very few licences have been refused since the Arms Convention has been ratified by this Country. This circumstance is capable of a very simple explanation. Very many inquiries are received from abroad which are, obviously, undesirable. Such inquiries are at once

rejected by the firm without reference to any Government Department. In other cases, where inquiries involve questions of technical or tactical interest to the Defence Departments the appropriate Department is at once consulted. As a result of this policy, many potential contracts have been abandoned without reference to the Board of Trade. It follows that before a request for an export licence is finally submitted to the Board, the circumstances have already been the subject of critical consideration from all points of view. Hence it is only on very infrequent occasions that the Board of Trade has had cause to raise objection to issuing a licence. On the other hand, the expansion of British industry and the furtherance of British trade in the world markets is of primary interest to the Government.

The licensing system not only works smoothly and efficiently in this Country but there is very little question that if a similar system were adopted throughout the world, administered with energy and justice, it would provide a completely efficient check on the abuses that are alleged to have become apparent. On the other hand, if armaments exports are unchecked in other countries, the possibility of abuses will inevitably continue to cause anxiety and so perpetuate general disquietude.

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Sir Charles Craven: The only point is on the section headed "Labour," where at that time I said that we "employ to-day approximately 30,000 people." Well, yesterday the employment at Vickers-Armstrongs was 36,200 people. I should like to record that.

2218. *Sir Thomas Allen:* Could you tell us what proportion of those is on armaments? Is that a total increase on armaments?

Sir Charles Craven: I could not tell you. A considerable proportion of that extra 6,000 are on armaments, but we also have orders for a large passenger ship. It is very difficult to tell you off-hand, but to take the particular works where a great deal of that work has gone through during the last few years, it has been employed roughly 50 per cent. on armaments—that is, calling a warship armaments.

2219. *Mr. Spender:* There are a certain number of women employed, I suppose?

Sir Charles Craven: Yes, and I can give you the details. I thought you would probably be referring to the skilled man question, and I have the whole statement for you then.

2220. *Chairman:* Then if there is nothing more you want to say on Statement No. 2, we had better have Statement No. 3, which was in answer to our questionnaire. Will you read that?

Sir Charles Craven: I have a covering statement which I should like to read to you.

2221. *Chairman:* Yes. I thought we would have the Statement read first, and then your covering statement.

Sir Charles Craven: I will ask (Mr. Reid Young to read the answer to the Questionnaire. There is a good deal of accounting in that.

Mr. Reid Young (reading).

STATEMENT No. 3

In considering the answers to the questions set out in the Commission's letter of the 23rd April* last and in particular in regard to the opening paragraph of the letter in which information is asked relative to "Messrs. Vickers Limited, Messrs. Vickers-Armstrongs Limited and any Subsidiary Companies under their control", there are certain general points to which the Commission's attention is asked. It is pointed out that the Vickers Group of Companies consists of:—

- (a) The Parent Company, Vickers Limited.
- (b) Certain wholly owned manufacturing Companies.
- (c) Certain partly owned manufacturing Companies.
- (d) Finance Companies wholly owned.

Vickers Limited itself carries on no manufacturing or sales activities and therefore certain of the questions asked are inapplicable to it. This refers particularly to the following:—

- (1) Turnover.
- (2) Turnover divided between British and foreign orders.
- (3) Value of plant employed in the production of arms.
- (4) That portion which deals with the proportion of profits attributable to the production of arms and munitions of war.
- (5) Employees engaged on the production of arms.
- (6) The firm's capacity for expansion for production of arms.

With reference to Classes (b) and (c), manufacturing Companies both wholly and partly owned, it is pointed out that certain of these Companies are not in any way engaged on the manufacture of arms or munitions of war. As it is assumed, however, that the information asked for is desired in respect of the whole Vickers Group of Companies, the questions asked (so far as they are applicable) have been answered in regard to all Companies whether manufacturing arms or not.

In regard to Class (d) (wholly owned Finance Companies), the only questions which appear to be applicable are No. 4 (amount of declared profits), and No. 8 (details of the Company's holding of capital of other Firms).

QUESTION 1.

The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.

Appendix 1† sets out in detail the information asked for, and, in accordance with the arrangement made with the Secretary to the Commission, the

relative information in regard to each manufacturing Company in the Group is shown separately. Generally speaking, the basis adopted has been the amount of sales invoiced by each particular Company for the years in question, but in certain instances it has not been possible to adopt this basis owing to the nature of the contracts involved. However, it is explained that the figure given in each case represents the total amount credited to the final Trading Account of each Company concerned for each year in question.

No figure is included in this schedule in respect of Vickers Limited, in view of the fact that, as already explained, it is a Holding Company and carries on no manufacturing or selling activities.

QUESTION 2.

The proportion of the turnover in each of the last five years representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire, and (c) foreign, orders.

Appendix 1 gives the information asked for as well as that required by Question 1, but it is pointed out that it has not been possible to separate the turnover as between the United Kingdom and the British Empire as requested. This is due to the fact that in many cases material required by the Dominions and Colonies is ordered by the appropriate British Government Department in London, that is either the Admiralty, War Office or Air Ministry, and in many cases the ultimate destination of the material is not known to us. Certain orders are, of course, received direct from certain parts of the Empire, but it is felt that with the information at our disposal the figures cannot be reliably divided as between the United Kingdom and the British Empire.

QUESTION 3.

The estimated value of plant employed in the production of arms and munitions of war that would be rendered redundant in the event of the establishment of a State Monopoly.

Appendix 3* gives the information asked for. In answering this question it has been assumed that the word "plant" used in the Commission's letter is intended to mean the complete layout of Works, i.e., land, buildings, plant, loose tools, etc. It has also been assumed that the information required is the estimated cost to the Government of purchasing similar plant of similar age and condition for the production of arms and munitions of war in the event of the establishment of a State Monopoly. With this factor in mind the estimates have been prepared by the Engineers of the respective Companies on the basis of the estimated replacement value of the assets concerned. It is desired to

* See p. 345.

† See p. 402.

* See p. 403.

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emphasise the fact, however, that such valuations, to be reliably compiled, would require a much longer time than has been available to us, and the figures given in Appendix 3 are, therefore, put forward with all reserve in an endeavour to put some helpful information in the hands of the Commission. With regard to the following Companies, viz.:—

Vickers-Armstrongs, Limited,
 Vickers (Aviation), Limited,
 The Supermarine Aviation Works (Vickers), Limited,
 The Whitehead Torpedo Co., Limited,
 The Thames Ammunition Works, Limited,

it is further pointed out that although in some cases a certain portion of the plant is at present and has been during a number of years employed to some extent on general commercial work, it is our view that in the event of the establishment of a State Monopoly of arms and munitions, the whole of the plants would necessarily be redundant for the reason that they have been laid down primarily for the production of armament material and it would not be possible to maintain any of them as going concerns on commercial work alone.

In the case of English Steel Corporation, Limited, only certain parts of its plant have been dealt with, but it is pointed out that the removal from this Company of the munitions manufacture, which at present forms part of its output, might have a far-reaching effect on the remaining portion of the Works and, while the figures are put forward for the purpose of answering the question as far as possible, these again are given with all reserve. In regard to The Darlington Forge Limited, although that Company is at present non-operative, it has always been the intention of the directors to re-open its works provided that a sufficient volume of work could be foreseen to justify such a decision, but if armament manufacture be made a State Monopoly, it is quite clear that the plant of English Steel Corporation, Limited, in the absence of armament manufacture, would be ample or more than ample to meet the requirements of commercial work alone.

With regard to Cooke, Troughton & Simms Limited, which Company undertakes a certain amount of armament work, it will be seen that in Appendix 3 no part of the plant has been earmarked as necessarily redundant in the event of the establishment of a State Monopoly. This view of the matter is correct if the Company were able in that event to obtain such an increased volume of commercial business as would compensate for the loss of Armament turnover. In actual practice, of course, this hope would probably not be realised, and in that event plant of considerable value would become redundant.

QUESTION 4.

The amount of declared profits of each of the last five years; and an estimate of the proportion thereof attributable to the production of arms and munitions of war.

Appendices 4*, 4a* and 4b,* give the information requested in detail in so far as it is applicable, but, as submitted in the covering letter, it is suggested that the information given in Appendix 4† is sufficient for publication.

In regard to the request that copies of the published accounts of the Companies for the five years should be provided, it is pointed out that only in the case of the following Companies are accounts published, these being the only Public Companies in the Group namely:—

Vickers Limited;
 Vickers-Armstrongs Limited;
 English Steel Corporation Limited;
 The Darlington Forge Limited;—(converted to Private Company before issue of Accounts for

1932—went into voluntary liquidation for purposes of reconstruction, 16th November, 1933); The Ioco Rubber & Waterproofing Co., Limited; Metropolitan-Cammell Carriage, Wagon & Finance Co., Limited;—(went into voluntary liquidation for purposes of reconstruction 31st October, 1934);

and copies of the printed accounts in each of these cases are appended.

The Metropolitan-Cammell Carriage & Wagon Co. Limited, formed on 31st October, 1934, is a private company, as is also the present Darlington Forge Limited.

All the other companies in the Group are also private companies and, therefore, there are no published accounts.

It has been considered that it would make the position clearer to the Commission if the companies in the Group were sub-divided, and accordingly the Appendices show:—

(1) *The profits of Vickers Limited—Appendix 4*.*—By way of explanation it is pointed out that the profits of this company during the five years in question have been derived, generally speaking, from the following sources:—

(a) From dividends on shares held in manufacturing companies in the Group whether arms producing or not.

(b) Income from the Company's investments in finance companies and in British Government securities.

(c) Sundry items.

In regard to (c), the items comprised in this heading are profits brought in to the Company's accounts as a result of the terms of the Vickers-Armstrongs amalgamation agreement of 1927 under which part of the profits accruing from certain contracts taken by the transferor companies prior to the amalgamation were retained by the respective companies. Also included are the losses sustained by a subsidiary company, Messrs. Vickers (Crayford) Limited on certain commercial trading activities carried on during the year 1930-31, which losses were written off in the books of the parent company. It has been thought advisable in view of the special nature of these items to include them under a special heading, and it is pointed out that although a certain portion thereof was derived from armaments contracts they have not been included in the figures shown by Vickers-Armstrongs Limited.

2) *The profits of the companies which are either wholly or partly engaged in the production and/or sale of Munitions of War.—Appendix 4a*.*—In regard to Vickers-Armstrongs Limited in particular, it is pointed out that the accounts of the Company as ordinarily prepared do not show the final profit earned from the manufacture and sale of armaments as distinct from commercial products. There are, as will no doubt be appreciated, many items of a general nature which in the accounts of the Company are charged directly to Profit and Loss Account and are not allocated specifically to any particular production. It has therefore been necessary, with a view to affording the information asked for by the Commission, to adjust the accounts in such a manner as to show as nearly as possible the actual final trading results in regard to armament manufacture and sales as distinct from other products and for this purpose, as well as making the adjustments mentioned above, to eliminate also credits and expenses directly attributable to purely financial transactions. It will be noted also that the calculation of profit is shown in the first instance without deduction of certain necessary charges against profit in the nature of provision for bad debts and for a heavy item of expenditure of removal of the Erith Works to Crayford. In the case of English Steel Corporation Limited and Darlington Forge Limited

* Not printed.

† See p. 404.

* Not printed.

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(Old Company), it has been necessary to make adjustment for very heavy expenditure which was necessary in connection with the reorganisation of those companies. The final column of Appendix 4a, therefore, in the case of these particular companies, shows the profit after adjustment in respect of these items.

(3) *The profits of the companies wholly engaged in the manufacture of commercial products—Appendix 4a.*—It will be noted that certain necessary adjustments have been made.*

(4) *The profits of the Subsidiary Finance and Estates Companies of the Group.—Appendix 4b.*—In these cases the total profits of the companies are derived from interest, dividends, rentals, etc., received and are in no way connected directly with armament manufacture. It has therefore not been considered necessary to show any details of these.*

QUESTION 5.

The average number of employees engaged in each of the last five years on the production of arms and munitions of war and other products respectively.

Appendix 5.†—In some cases it has been difficult to answer the questions as framed in view of the fact that certain of the departments at all of the works of Vickers-Armstrongs Limited and of some of the other Companies in the Group are general departments which are applicable either to armaments or commercial work. Accordingly a proportionate basis has been adopted, and the employees in such departments have been allocated on the basis of productive wages expended on armament production and commercial work respectively. Staffs have been dealt with on the same basis.

QUESTION 6.

The firm's capacity for expansion for purposes of the production of arms and munitions of war (a) with (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war?

Reply not printed.

QUESTION 7.

Particulars of any agreements with other firms engaged in the production of arms and munitions of war stating the names of the parties, British and foreign, to such agreements.

Appendix 7* gives a summary of agreements for each Company in the Group. It is pointed out that it has been considered desirable to make this list comprehensive and it will, therefore, be found that it includes many agreements which do not refer in any way to arms or munitions of war, but these have been included on the basis that they are agreements between Vickers Companies and other Companies which we believe are engaged in or connected with the manufacture of arms and munitions of war. Similarly it will be found that the list includes agreements between the Vickers Companies and private individuals, which information, we understand, has not been requested by the Commission, but it is given in case it may be of interest. It will be found that such agreements largely refer to licence arrangements.

It is pointed out that in the ordinary course of business certain of the Companies in the Group are members of trade and similar associations, and where to our knowledge any other armament firm is a member of an Association particulars are given. We would mention, however, that the Companies in the Group are members of many ordinary trade associations, particulars of which would presumably not be relevant to the present enquiry. These are

merely ordinary exclusive buying and rebate agreements generally, which are not in any sense peculiar to the armaments industry.

In the event of the Commission requiring copies of any of the agreements we shall be happy to supply them.

QUESTION 8.

Details of the firm's present holding of the capital of other firms, giving names (British or Foreign) and of the holdings of the firm's capital by other firms, giving names (British and Foreign).

Appendix 8* gives the information asked for relative to the first part of this question in regard to the various Companies in the Group. With reference to the second part of the question, namely, the holdings of capital of the Vickers Group of Companies by other firms, the information is given on Appendix 8a* for all Companies other than Vickers Limited. Regarding Vickers Limited, however, the register of members has been scrutinised with a view to seeing whether or not any Company, which to the best of our information is engaged in armament production, holds shares in that Company. The name of only one Company which may have some connection with the armament trade has been found; this is a French Company called Société Alsacienne d'Explosifs, which holds 1,000 ordinary shares. In fact, we have no knowledge of the trade carried on by the Company concerned. It is pointed out, however, that the shareholders of the Company number approximately 65,000 and there are, as in all Companies of this size, a large number of holdings in the names of nominee Companies, and, it may be, in the names of individuals who are likewise nominee holders. It can, however, be definitely stated that there are no arrangements or agreements to which Vickers Limited is a party under which any Company engaged in the manufacture of arms and munitions of war or, in fact, any Company or individual whatsoever either at home or abroad, holds shares in the Company.

Similarly it can be stated definitely that no bank or financial house, British or foreign, has any controlling interest in the Company or has any part in the management or direction of the Company's affairs.

QUESTION 9.

The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

Appendix 9† deals in detail with the information asked for in this question.

2222. *Chairman:* Just to take the Appendices for the moment. Appendix 1‡ is a statement showing the total turnover in each of the five years from 1930 to 1934 attributable to the production of arms and munitions of war divided between the British Empire and foreign. It is not necessary to go through all the companies, but the two companies with the largest turnover are the English Steel Corporation, Limited, and Vickers-Armstrong, Limited, are they not?

Sir Charles Craven: Yes.

2223. *Chairman:* Let us take the proportion attributable to foreign armaments of the English Steel Corporation. In 1930 it was 1.88 per cent. Is that right?

Secretary: That is the proportion of the total armaments that were foreign.

Chairman: No, it is divided into percentage attributable to armaments, percentage of arms British Empire, and percentage of arms foreign. I am taking that column of the percentages of arms foreign, and that is 1.88. Is that right?

* Not printed.
 † See p. 405.

* Not printed. † See p. 406.
 ‡ See p. 402.

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Mr. Reid Young: Yes.

2224. *Chairman:* And in 1931 it is 0.09 per cent.?

Mr. Reid Young: Yes, of 25.71 per cent.

2225. *Chairman:* And in 1932 it is 1.01?

Mr. Reid Young: Yes.

2226. *Chairman:* In 1933 it is 0.35, and in 1934 it is 0.14?

Mr. Reid Young: Yes.

2227. *Chairman:* Then the other large turnover is Vickers-Armstrongs, and taking it the same way, the percentage of foreign in 1930 is 34.65, in 1931 it is 40.19, in 1932 it is 30.73, in 1933 it is 38.40, and in 1934 it is 45.63. Is that right?

Mr. Reid Young: Yes.

2228. *Chairman:* Then Appendix No. 3* contains the estimated value of lands, buildings, and so forth. I need not refer to that, I think. Appendix No. 4† is the form in which you have summarised the contents of the other appendices which are not published?

Mr. Reid Young: Yes.

2229. *Chairman:* That gives the replacement value of armament land, buildings, etc., annual value of armament turnover, profit after charging special expenditure, and profit before charging special expenditure. What would be included in the special expenditure there?

Sir Charles Craven: The closing of the works was one special item, Sir, and special compensation of staffs.

2230. *Professor Gutteridge:* Did it include anything for breach of contract?

Sir Charles Craven: No; compensation for loss of office.

2231. *Professor Gutteridge:* Only?

Sir Charles Craven: Yes.

2232. *Chairman:* Then in the rest of the document you give the percentage of profit to replacement value, and the percentage of profit to turnover. I need not trouble about that. Appendix No. 5‡ shows the average number of employees engaged in each of the last five years. Then Appendix No. 9§ is "Statement of the Practice of the Firm in regard to the Advertisement of, and the Soliciting for Orders for, Arms and Munitions of War." I see there is a definite statement there with regard to some questions that were put to you by Dame Rachel Crowley, on the section headed "SOLICITING FOR ORDERS." You say: "The selling arrangements of the company being as outlined above, it is emphasised that there is no general practice of soliciting for orders for armament material. Only where it is definitely known that the government is in the market for a certain type of material, and where the agent of the company concerned so recommends, does the company send representatives, technical or otherwise, abroad." Then I also see there that the agent obtains a tender, and the acceptance of the order by the company.

Sir Charles Craven: Entirely.

2233. *Chairman:* Then there is a long statement showing the amounts paid for advertising, and there is a standard agency agreement for Vickers-Armstrongs' agents, and a standard agreement for Vickers Aviation, Limited. That comprises the whole of the information which you think should be made public, and the rest of the appendices are material which you supply to us and think it is either against the public interest or your private interests that they should be published?

Sir Herbert Lawrence: Yes.

2234. *Chairman:* Then you have a statement which you wish to make to us in addition to that, have you not?

Sir Charles Craven: Yes, Sir. It is very short. Before I do that I wish to submit that we have received a letter from Mr. Walton Newbold telling

me that the evidence already given* with regard to Mr. Loewe, who was a managing director of Vickers over thirty years ago, is not correct. He tells me that he knows he was still a director of the Deutsche Waffen Company, and of another company the name of which I cannot read, in Germany, while he was with Vickers. He died in 1903. I wanted just to correct that, if I might, and apologise.

2235. *Chairman:* Thank you. Now will you read your statement?

Sir Charles Craven (reading):

I have very little to add to the opening statement which has been made by Sir Herbert Lawrence, the chairman of our parent company, but there are one or two points which I would submit for the consideration of the Royal Commission.

We have given careful consideration to the question of submitting replies to the evidence offered by various witnesses who have already appeared before the Commission, but we feel that having answered in writing as fully as we possibly can the various questions that have been addressed to us, no good purpose would be served by our submitting a long statement. We sincerely hope, however, that the members of the Commission will, in the questions they address to us, give us an opportunity of replying to many of the points raised by previous witnesses, as we feel it would be wrong for many of the allegations to stand as fact when we know they cannot be substantiated.

In the statement put forward by the Union of Democratic Control certain very serious charges were made against the efficiency of the English Steel Corporation Ltd., which corporation operates the principal steel industries of our country. Sir William Jowitt, who put forward the Union's case, when asked by the Commission if he was in a position to produce witnesses, frankly admitted that he was not able to do so. The English Steel Corporation felt that as these particular charges of inefficiency could be categorically denied it was right that we should submit a statement giving the facts of the case; and as chairman of the corporation I have brought with me three whole-time directors of the corporation who can support the statements made in our memorandum.

2236. *Chairman:* Please stop there for a moment. That deals with the question that I referred to at the opening of the sitting to-day. On these technical questions if necessary we shall have to take technical advice. They are not matters which we can dispose of otherwise.

Sir Charles Craven: I submit, Sir, that technical experts will have to visit the plant to see whether we are telling the truth or not.

(Reading) Sir Herbert Lawrence in his opening letter to the secretary of the Commission particularly refers to the agreements that have already been made public by the United States Inquiry and offers a full investigation into these agreements and the fullest publicity regarding them. I submit a memorandum‡ which briefly summarises the association between ourselves and the Electric Boat Company and also gives some explanation regarding my personal correspondence with the directors of that company, and particularly with the vice-president, Mr. Spear. As my personal reputation has been attacked I should, quite apart from the interest of my company in this matter, welcome the opportunity of replying in detail to any questions which the members of the Commission may see fit to put to me.

I wish to take this opportunity of explaining in general terms the circumstances in which these letters were written and I submit to the members of the Commission the fact that I have known Mr. Carse, the present president of the Electric Boat

* See p. 403.

† See p. 405.

‡ See p. 404.

§ See p. 406.

* See Q. 1952.

† See Appendix 10, p. 413.

‡ See p. 384 and Appendix 19, p. 431

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Co. for over 15 years and a close friendship has existed between Mr. Spear, the vice-president of the Electric Boat Co., and myself, for over 23 years. Under these circumstances the correspondence which passed between us was not couched in ordinary business language but in colloquial language, such as is used when writing to close personal friends. From the fact that all such correspondence was clearly marked as "personal" or in some equivalent manner it will be appreciated that it was never anticipated that these letters should form part of the official business records of either company. The members of the Commission will, therefore, no doubt understand that the terms used in certain of the letters, and out of which great capital has been made, did not imply the meanings which have been attached to them and I can explain in detail to the members of the Commission, should they feel disposed to address questions to me on the subject, that this was the case. In this connection also I would like to inform the Commission that immediately these letters became public through the American Inquiry, in view of reference to certain high officials at the Admiralty contained therein, I wrote an explanatory letter to the First Lord of the Admiralty. I wish to hand to the Commission a copy of that letter* together with a copy of the reply which I received from the First Lord.† I have obtained his authority to do so.

Another point on which efforts have been made to make much capital by the critics of the private manufacture of arms is that of the employment of ex-government officials and in certain of the statements put before the Commission various names have been instanced. The Commission will undoubtedly recognise the fact that in appointing such ex-government officials to positions with the company whether on the board or otherwise there are no ulterior motives in the minds of the directors, it being obvious that a company whose business is the manufacture of armaments must obtain the benefit on its staff of men with expert knowledge as users of its products and user knowledge can obviously only be obtained by the engagement of retired specialist officers.

Certain of the witnesses who have appeared before you, in particular Dr. Addison, have severely criticised the private manufacturers of arms for their alleged failure at the outbreak of the Great War. The Commission will no doubt have noted that any criticism on this count has been made because of the shortage of material for supplying the army. No criticism has been made that the needs of the navy were not fully and adequately met. I would like to take this opportunity of pointing out to the Commission that before the War, with the exception of one period in 1906 and 1907 when the army was being re-equipped, the amount of orders received by Vickers Limited from the War Office was negligible, whereas the company had been very largely occupied during that period in supplying the needs of the Admiralty. It therefore will be obvious that by relying to a very large extent on the resources of private manufacturers the Admiralty obtained satisfaction in regard to all its requirements, and that even on the outbreak of war the increased needs of that department were satisfactorily dealt with. It could not be expected that the War Office, which had not been placing orders of sufficient magnitude to ensure that sufficient plant and personnel was available for an emergency, could obtain the necessary sudden expansion of capacity from the private manufacturers. Then I have written in those figures which I gave you this morning—that the average orders from the War Office were £55,000 a year and from the Admiralty £2,588,000.

I feel sure that on examination it will be found the army expansion in the Great War was never

foreseen and that even some months after the declaration of war the requirements of supply were found to be very much greater than was anticipated in August, 1914, and, therefore, whatever pre-War organisation had been set up, the demands, particularly for ammunition supplies, became so tremendous that measures had to be taken which had never been considered as likely to be necessary.

Much has been stated about the efficiency of the National Shell Factories which were set up by the Government. We would remind the Royal Commission that the majority of these shell factories were laid out, equipped, and, certainly in some instances, managed by the armament firms. Comparisons of cost have been made between these modern mass production shell factories and the modest pre-War shell shops being operated by the principal armament companies in the early stages of the War. No such comparison is justified, as the private shops dealt with many types of projectiles with a relatively small output; and we would further submit that when comparing the output from the private shell shops at the beginning of the War with that of Woolwich, consideration should be given to the volume of pre-War orders placed with the private firms and Woolwich Arsenal.

No doubt the Commission will be informed by the Service Departments of the position in regard to supplies which exists to-day, and I feel sure that evidence will be forthcoming which will show that where any specially urgent demands have been made on private industry since the War, the companies concerned have in every case risen to the occasion.

A typical misunderstanding regarding the secrecy with which armament firms are stated to carry out their businesses may be corrected when I inform the members of the Royal Commission that at the present time we have in the various works of Vickers-Armstrongs and its associated companies no less than 521 inspectors appointed by the Government. The rank of these inspectors ranges from senior naval officers, who inspect work under the warship, armament and steel contracts, down to the junior women inspectors in the fuse departments.

2237. *Chairman:* May I ask if those are whole-time inspectors?

Sir Charles Craven: Whole-time; yes, Sir. They fluctuate according to the amount of work we have in hand.

2238. *Chairman:* At whose charges are the 521 inspectors?

Sir Charles Craven: The taxpayer. They are government servants. We have nothing to do with them.

2239. *Chairman:* They are nothing to do with you?

Sir Charles Craven: No, Sir.

(*Reading*) It appears that considerable difference of opinion has been expressed by various witnesses regarding the necessity of skilled men in the armament industry. As I believe this to be a very important matter, I have prepared figures showing the numbers of skilled, semi-skilled and unskilled people employed in the various branches of our organisation, which I will hand to you if you desire.*

2240. *Chairman:* When I used the term "whole-time", what I meant was: Are they people who pay casual visits, or when there is work for them to do, do they remain at the factory the whole day?

Sir Charles Craven: I should say that 95 per cent. of these people are whole-timers; but at Sheffield they have a central office of their own in the town, and they go from one firm to another; but even in Sheffield there are some full time inspectors at our works as there are in Barrow.

(*Reading*) In conclusion I submit that in view of the very large capital and research expenditure which has been undertaken by Vickers-Armstrongs, its subsidiaries and associated companies during the last few years and the special steps that have been

* See p. 379.

† See p. 380.

* See Appendix 18, p. 430.

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taken to train personnel in the most accurate form of engineering, an independent examination would abundantly show that the group of companies is efficiently managed and is equipped with plant and personnel at least as good as that in any other company in the great industries of the country.

That is all I have to say, except just to correct the figures that were given when we sent in our return. The figures of employment of Vickers-Armstrongs, as I mentioned before, including the English Steel Corporation, are 36,200 to-day, and the Vickers Company, directly under Vickers—that is, the various companies—10,569; so that Vickers Limited, as a whole, is employing to-day 46,769 people. I do not suppose you want me to read the letter from me to the First Lord. It is very long. It is on the record.

2241. *Sir Thomas Allen*: We had better make the correction of the date, I think, from 1917 to 1927.

Sir Charles Craven: Would you like me to read it?

2242. *Sir Thomas Allen*: That ought to go in, that it was written not in 1917, but in 1927.

Sir Charles Craven: It was implied in the newspapers—but I do not think before the Committee in America—that this had been going on in 1917, when there was a war on.

2243. *Professor Gutteridge*: Might I ask Sir Charles something on this? In your letter to the First Lord you set out what you say is the correct version of that letter. That is so, is it not?

Sir Charles Craven: Yes, Sir.

2244. *Professor Gutteridge*: Had not you better read that, do you not think? If it differs from the letter as stated in the American report, had you not better read it?

Sir Charles Craven: Well, Sir, as stated in the American evidence it is correct, but not as stated in the English newspapers which came out then, when I saw a leading article headed "His Admiralty Friend," I think.

2245. *Chairman*: I think it is rather suggested it would be wise to read this letter. It will not take more than a minute or two.

Sir Charles Craven (reading):

19th September, 1934.

The Rt. Hon. Sir Bolton M. Eyres Monsell,
 G.B.E., M.P., The First Lord of the Admiralty,
 London, S.W.1.

Dear First Lord,

I am venturing to trouble you with this letter because I feel that some explanation is due to you from me in connection with the reports that have appeared in the Press of certain evidence given at the Enquiry into the Armament industry now being held at Washington.

These reports allege that a letter written by me in 1917 to Mr. L. Y. Spear, Vice-President of the Electric Boat Company of America, and produced before the Committee of the U.S. Senate, contained the following passage:—

"We have received invitations from the Admiralty for one, two or three submarines. Armstrong Whitworth has, too. Armstrong will put in their bid. Whatever the price, I shall tell Armstrong to put the price slightly above ours so that whatever is built will be built by Barrow.

My friend at the Admiralty will help us, as he tried to get all five submarines for us last year." You have no doubt noticed that, on the strength of these words ascribed to me, suggestions of improper relations existing between armament firms, and of collusion between contractors and Admiralty officials have been made in certain quarters.

I should like, therefore, to explain that, apart from a mis-statement of the date of my letter to Mr. Spear, which was written not in 1917 but on the 7th October, 1927, the passage in question has been seriously misquoted, and given without its context. The letter was written on the eve of the conclusion of the agreement for the amalgamation of Vickers and Armstrongs (which agreement was actually signed on the 31st October, 1927), and what I actually wrote to Mr. Spear was as follows:—

"Absolutely personal and confidential.

7th October, 1927.

L. Y. Spear, Esq.,
 Electric Boat Company,
 Groton, Conn., U.S.A.

My dear Spear,

By the time this letter reaches you it is possible that we may have come to an agreement with Armstrongs whereby a new Company is formed to take over the shipbuilding and armament sides of Vickers and Armstrongs. The terms are such that the new Company will be run by Vickers. This opens up an interesting question regarding our agreement with you, and it would be necessary to have a discussion when next we meet. In the meantime, however, we have just received an enquiry for one, two or three boats for the Admiralty. Armstrong-Whitworths have also received a similar enquiry. My present feeling is that we should quote for one, two or three from Armstrongs, who have agreed to put in whatever price I tell them, and that we should also quote for one, two or three boats from Barrow. I would keep the Armstrong price very slightly above ours, the idea being that whatever boats were ordered from either party would be built at Barrow, so effecting considerable economies. I also think that perhaps it would be worth while putting forward a tender for six boats, the total number to be built. I have had a word with the Director of Contracts at the Admiralty, who is a friend of mine, and who would like this. He, I know, tried to get us the order for all five submarines last year.

Whatever happens will you give me authority to make the same reduction in your Royalty as we did last year? According to my pocket book we reserved for you £9,000 for one, £7,200 for each of two, £5,600 for each of three, £4,375 for each of four, and £3,600 for each of five, and I suggest to you that we should put in £3,200 for each of six.

I do not know if I have made the matter as clear as I should. At the moment the two firms are not combining in any way, and therefore, if negotiations break down, Armstrong-Whitworths will, of course, be free from us, but the tenders have not to be in until the middle of November, so we should certainly know one way or another before then. Needless to say we do not want anything to come out about the proposed fusion until it is all clear, and I am just sending you this letter so that you can think over the situation."

As regards the general tenor of these remarks, you will see that I was expressing my opinion that as the Vickers-Armstrong agreement appeared to be on the point of conclusion—under which it was intended that all submarine building by the new combined firm should be concentrated at Barrow owing to the greatly superior facilities there—no good purpose would be served by Armstrong putting forward a serious competitive tender. I think that the Admiralty will agree that, in the circumstances then existing, that opinion was quite intelligible.

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My letter distinctly pointed out that if the proposed amalgamation did not materialise, Armstrong's would naturally be free to put in whatever tender they pleased.

I desire, however, to express my great regret that the particular reference which I made to the Director of Contracts should have been made, even in a personal and confidential letter to a man I had known for over 22 years—realising as I do on reflection, that it could be read as tending to discredit the impartiality of an Admiralty official who is universally respected and trusted.

I was, of course, well aware, from my own experience when serving at the Admiralty, that the decision in matters of such importance rests entirely with the Board, and that it would not be within the power of the Director of Contracts, or any other Head of a Department, to bring about a decision in favour of a particular contractor. A reference to the context of my letter makes it perfectly clear that in expressing my favour of ordering all the submarines from one contractor I took it for granted that he would have been actuated not by any partiality towards any particular firm, but solely by the probability of its being the most economical arrangement for the Admiralty to make.

I think my letter to Mr. Spear will make it quite clear to you that my main object in writing to him was to effect a reduction in the amount of royalty that my company were entitled to pay to the Electric Boat Company under an agreement of long standing, so reducing our price for the vessels.

Yours sincerely,
 (Sgd.) C. W. CRAVEN.

Shall I read the First Lord's reply, Sir? It is quite short.

2246. *Chairman*: Yes.

Sir Charles Craven (reading):

October, 1934.

Dear Sir Charles Craven,

Thank you for your letter of the 19th September. It was obvious to the Admiralty that the statement attributed to you could not have been

written in 1917, as at that date, owing to war conditions, all warshipbuilding in contract yards was on a "time and line" basis. I am glad to have a copy of what you actually wrote in 1927, and I can quite understand the awkward position in which you were placed when the Vickers-Armstrong merger was on the point of completion, and when you felt that no good purpose would be served by Armstrong's putting in a serious competitive tender, and so perhaps receiving a contract which under the merger arrangements would be executed at Barrow.

I am also glad to receive your apology for your unfortunately worded reference to the Director of Contracts. I share your regret that it was ever made, for it was capable of an interpretation utterly at variance with the truth. In allocating shipbuilding orders, the Admiralty are, of necessity, guided chiefly by the prices tendered, though such considerations as the experience and capacity of the various firms and also the desirability of preventing monopoly and maintaining an adequate field upon which the Department can rely, are given weight. I had already, before receiving your letter, examined carefully the files relating to the tenders for submarines in 1926 and 1927, and had satisfied myself that the allocation in each year had been considered carefully and without bias, from these points of view, and had been finally decided by the First Lord himself on the advice of the two responsible Members of the Board, namely the Controller and the Parliamentary Secretary of the Admiralty.

Yours sincerely,

B. EYRES MONSELL.

Commander Sir Charles Craven,
 O.B.E., R.N.

2247. *Chairman*: We cannot have this building to-morrow morning, so we have decided to utilise the opportunity of having a meeting in private; but we shall be able to have accommodation here in the afternoon, and therefore we propose to sit again to continue this evidence to-morrow at 2 o'clock. Will you be able to come here to-morrow at 2 o'clock.

Sir Charles Craven: Yes, Sir.

Chairman: Then we will continue the evidence to-morrow.

(Adjourned.)

FOURTEENTH DAY

Thursday, 9th January, 1936

PRESENT :

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Commander Sir CHARLES W. CRAVEN, O.B.E., R.N. (retired), Mr. F. C. YAPP, Mr. J. REID YOUNG, C.A.,
Sir ROBERT McLEAN, and Mr. A. DUNBAR; representing Messrs. Vickers Ltd. and Associated
Companies: called and further examined.

2248. *Chairman*: Sir Charles, I should like to clear this up. In the information which you have given us in answer to our questions you include particulars of agreements with other firms engaged in the production of arms and munitions of war; you give the dates of the agreements and a short statement of the contents. I am assuming that all those documents are at our disposal to look at, if we call for them.

Sir Charles Craven: Certainly, Sir.

2249. *Chairman*: You have had supplied to you, have you not, a copy of extracts that we have made of particulars referring to passages in the evidence dealing with your firm? We have supplied that in order that we may know which witness would be prepared to deal with the questions that we were going to put. You have that?

Sir Charles Craven: Yes, Sir.

2250. *Chairman*: I will go through that now, asking you questions, not with regard to each item but some of them. On the second page of the document,* Mr. Arnold Forster in his evidence suggests that the armament firms should be questioned as to whether any agreement exists as regards tenders amongst the firms who compete, or ostensibly compete, for Government orders for armour plate. I think that that particular matter was dealt with, was it not, so far as the English firms were concerned, when it was assented to that practically all iron and steel firms engaged in business in England were more or less in association?

Sir Charles Craven: Yes, Sir.

2251. *Chairman*: Does that mean that there is practically no competition?

Sir Charles Craven: For armour plate there are three firms, as I said yesterday, and those three firms have their books examined by the Government and a price is agreed by the Government department concerned.

2252. *Chairman*: If those three firms send in tenders, they are not independent tenders?

Sir Charles Craven: No. The order is placed and very often the price is agreed later. There is no tender.

2253. *Chairman*: But there is no such thing as independent tendering left now, in the iron and steel trade in England, is there?

Sir Charles Craven: We were practically ordered, I think, to build ourselves into an association before we were given the tariff to protect steel.

2254. *Chairman*: I am not asking how it came about, but it is a fact, is it not?

Sir Charles Craven: That is practically the position. I wish to make it clear that there is no real competitive tendering for armour plates for the navy. Every cost is examined by the Admiralty and a price is built up.

2255. *Chairman*: Mr. Arnold Forster also suggests that inquiry should be made as to whether any secret agreement exists between British firms who make military aircraft for the governments of this and other countries.

Sir Charles Craven: I will ask Sir Robert McLean, the chairman of our Aviation Company, to answer that.

Sir Robert McLean: No, Sir. No such agreement exists.

2256. *Chairman*: Thank you. On the next page there is a question which I will ask Mr. Reid Young, if he will, to answer. It is in Mr. Pollitt's evidence. He says that the entire capitalist class is interested in the benefits to be derived from armaments production, and that the control, though not necessarily the ownership, is monopolised in very few hands. Then he produces a chart illustrating the control exercised by important financial interests in the case of Vickers. What is the position with regard to that?

Mr. Reid Young: The position is that no control is exercised over Vickers by any particular body or financial house, or any such arrangement at all.

2257. *Chairman*: You are quite independent of any outside influence.

Mr. Reid Young: Most definitely.

Sir Charles Craven: I think my chairman, Sir Herbert Lawrence, definitely brought that out in his evidence yesterday.

2258. *Chairman*: Mr. Pollitt, on the next page, deals with the Sun Insurance Office policy matter. Sir Herbert explained that to us. I need not ask about that. At the bottom of the page Mr. Pollitt refers to a statement made by Sir Herbert Lawrence in 1934: "Our relations with the three defence services continue to be satisfactory, and though as an armament firm we are the subject of opprobrium in certain quarters, we claim that so long as our products are necessary for the defence of the Empire we are rendering a national service." I understand that is your position to-day.

Sir Charles Craven: That is so.

2259. *Chairman*: I skip two pages; then we come to what Dr. Addison said about deliveries of shells. Have you that passage?

Sir Charles Craven: Yes, Sir.

2260. *Chairman*: Dr. Addison says: Deliveries of shells by contractors to May, 1915, amounted to 1,526,400 against promises 5,729,900. The position with regard to the chief British contractors was: Vickers—promised 907,550, delivered 235,550, arrears 672,000; Armstrongs—promised 1,020,925, delivered 308,090, arrears 712,000. Can you say whether those figures are accurate, according to your books?

Sir Charles Craven: No, Sir, I cannot; but assuming that they are correct—it is going back a long time; I was not in the position I am to-day, but I can visualise the managing director of any of those firms being sent for and begged to promise deliveries or begged to accept orders that he could not possibly do. He was doing his best. I think I have, in the short address I gave you yesterday, pointed out that consideration ought to be taken of the pre-War orders that Vickers received for shells and what we did to multiply our output.

2261. *Chairman*: By that you mean that, having had so few orders before, you were not equipped for large orders?

* Not reproduced.

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Sir Charles Craven: No, Sir; I do not believe that the War Office knew the tremendous requirements that they wanted, even in August, 1914.

2262. *Chairman:* There is another reference to Dr. Addison's evidence. He says that the experience of the late War showed that the prices paid to private manufacturers prior to the establishment of a costings system under the Ministry of Munitions were excessive. What have you to say about that?

Sir Charles Craven: I think he compared the cost of a shell produced in our small modest shell shops, to which I referred before, which turned out all kinds of shells, with the cost of a shell that he could get out of a mass production factory. My grievance against Dr. Addison is that he does not give any credit to the armament firms for having equipped those big national shell shops of which he is so proud. We equipped them and managed them in many cases. The shell is not a high-class armament. It is a mass production article and, frankly, Sir, when you hear us in private I hope to explain to you a little more about it. I do not consider that the mass production of shells is a matter that Vickers, or other specialist armament firms, ought to be called upon to undertake. I think it is a waste of energy.

2263. *Chairman:* Whatever the position might have been on the outbreak of war, with regard to the prices charged, have the Government now an efficient system of checking prices for orders given?

Sir Charles Craven: The Government have, and we have too.

2264. *Chairman:* Yes; but the point is this. From the point of view of the nation, is the practice which is now adopted by the Government in dealing with prices charged for armament work sufficient to check any excessive prices being charged or obtained?

Sir Charles Craven: I think so. In some cases they actually get the cost from our books. Of course, if we were inefficient, they would get an inflated cost; but then they have Woolwich Arsenal and other firms by which to check us. There is no collusion or collaboration between the firms. I would like, if I may, to turn back to that word "promise." I do not think it quite fair to talk about the "promises of the armament firms." The armament firms worked day and night, all of them, to do their best and I can quite conceive the directors at that time being pressed to accept work that they did not want.

2265. *Chairman:* Who was the gentleman acting on Vickers' behalf in making those provisions?

Sir Charles Craven: Sir Trevor Dawson, who is now dead. He was then the vice-chairman and managing director. The other director who would deal with cost questions was Sir Vincent Caillard; he also is dead.

2266. *Chairman:* So there is no one from Vickers who was actually concerned in making the arrangements, whatever they were.

Sir Charles Craven: Mr. Yapp was a very junior hand in the contracts department at the time. I do not know whether he could answer.

Mr. Yapp: I could not answer these questions with regard to promises of delivery.

2267. *Chairman:* We have been told by somebody who was there that the result of the interview was that quantities were mentioned and people were asked to undertake the work and they did sign contracts; but at the same time they said "After all, we can only promise what we are in a position to fulfil."

Over the page there is a reference to the Mulliner incident. Are you in a position to give any evidence about what happened?

Sir Charles Craven: No. The only information I have about the Mulliner incident I have obtained from the evidence of the Royal Commission and from gossip. But I will say this: I have done exactly

what Mr. Mulliner is supposed to have done, within the last twelve months; I have given to the Government information that came to me which I thought was of value to them.

2268. *Chairman:* Do you mean in reference to what some other country was doing?

Sir Charles Craven: Yes.

2269. *Chairman:* In reference to armaments?

Sir Charles Craven: Yes.

2270. *Chairman:* Do you know anything about the next incident, the case of the Japanese official?

Sir Charles Craven: No. I have no evidence of any kind about it. It happened before I joined the Vickers Company.

2271. *Chairman:* Or the third incident—about E. J. Reid?

Sir Charles Craven: No. To go back to the Japanese incident, we have searched *The Times* files but they are not very conclusive. The only thing I would say is that if a managing director of Vickers behaved as one is supposed to have done, I cannot understand his being retained in the employment of the company; and he was. There is nothing in our books to show it.

2272. *Chairman:* I think we shall get definite information about the Mulliner incident. We shall have a full statement about it. You cannot help us with regard to the case of the Japanese official?

Sir Charles Craven: We have nothing in our books at all.

2273. *Chairman:* Or about E. J. Reid?

Sir Charles Craven: No. We know nothing about that. Was it about the design of battleships for Chile?

2274. *Professor Gutteridge:* He was a government official, was he not?

Sir Charles Craven: I cannot remember.

2275. *Professor Gutteridge:* Was he not a naval constructor?

Chairman: Yes.

Sir Charles Craven: Watts I can remember. Reid was a great naval architect; whether he was Director of Naval Construction or not, I cannot tell you. This evidence, I understand, is to show that there was competitive design between Vickers and Armstrongs. Is that right?

Secretary: That is the intention of the evidence.

Sir Charles Craven: There would be at that time.

2276. *Professor Gutteridge:* That was before the amalgamation?

Sir Charles Craven: Yes. It must have been pre-war.

2277. *Chairman:* The next case refers to a report in the *Japanese Weekly Chronicle* concerning a Japanese officer.

Sir Charles Craven: Yes, Admiral Fujii.

2278. *Chairman:* If you turn over two pages, you will find that, at the top of the page, Mr. Walton Newbold refers to the question of rings and you see he says that he does not know of anything in the nature of a world ring of armament manufacturers; but that there are signs of local rings, e.g., Vickers have an interest in Spain. That has reference to those small Spanish works, has it?

Sir Charles Craven: That is the small company, the Placencia Company, that is owned entirely by Vickers. Then we have a minority share in the big Spanish company which builds and maintains the Spanish navy.

2279. *Chairman:* "... and they have certain holdings in Japan." You have given us particulars of those.

Sir Charles Craven: Yes.

2280. *Chairman:* They are more or less investments. They are not a controlling interest.

Sir Charles Craven: No. We have nothing to do with them at all.

2281. *Chairman:* Mr. Fenner Brockway stated that British armament firms have produced war materials

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which have been used against Britain in time of war. Then he says that the Turkish arsenal and dock at the Golden Horn and the naval base at Ismid used against British and Australian troops in the Dardanelles, were maintained up to the very eve of the War by Vickers and Armstrongs. What is the fact about that?

Sir Charles Craven: I think Mr. Reid Young had better give you the history.

Mr. Reid Young: In 1913 an arrangement was entered into between the Turkish Government and Vickers and Armstrongs—that was before the amalgamation—under which Vickers and Armstrongs became technical advisers to the Turkish arsenals and docks. A company was formed called the Imperial Ottoman Docks Company in which Vickers and Armstrongs had certain shares. That company carried on until the outbreak of war in 1914. The docks and arsenals were then taken back by the Turkish Government and kept by them and maintained by them during the War. Subsequent to the War Vickers and Armstrongs were again asked to take up their interest in this company, which they did. That lasted until 1922, I think, when the company went into liquidation and Vickers' and Armstrongs' interest then ceased entirely.

2282. *Chairman:* Before the War had Vickers and Armstrongs had controlling interests in this company?

Mr. Reid Young: No, not controlling interests. They were technical advisers with a minimum interest in the shareholding.

2283. *Chairman:* Who had the controlling interest?

Mr. Reid Young: The Turkish Government.

2284. *Chairman:* That was a business arrangement which lasted up to the time of the War?

Mr. Reid Young: Until the outbreak of war, and was subsequently renewed after the War for a short period.

2285. *Chairman:* How was it terminated at the outbreak of war?

Mr. Reid Young: The Turkish Government took possession of the docks and arsenals themselves, and they were carried on, I understand, during the War under their own supervision.

2286. *Chairman:* You had nothing to do with it during the War?

Mr. Reid Young: No. All the staff who were there were sent home just after the outbreak of war.

2287. *Chairman:* Then Mr. Fenner Brockway goes on to say that the docks of Henry Whitehead & Co. (a subsidiary of Vickers and Armstrongs) at Fiume, in Austria, provided torpedoes, torpedo-boats, torpedo-boat destroyers, submarines and mines for Austria immediately before the World War, and during the War these docks were used to supply the navies of the Central Powers. Was Whitehead a subsidiary of Vickers and Armstrongs?

Sir Charles Craven: I do not know that it was a subsidiary. Vickers and Armstrongs were shareholders in the Whitehead Torpedo Company.

2288. *Chairman:* Had they a controlling interest?

Sir Charles Craven: Yes, they had in 1906. We started in the early sixties at Fiume where Mr. Whitehead, the inventor of the torpedo, started his works, and I am advised that it was at the request of our own Government that Vickers and Armstrongs took an interest in this torpedo company. Then in 1906 we acquired control. At Weymouth we still operate a torpedo company which is entirely owned by Vickers-Armstrongs, and which was incorporated under English law as a separate company in 1907. We still had a shareholding in the main Whitehead company at the declaration of war, had we not, Mr. Reid Young?

Mr. Reid Young: Yes.

2289. *Professor Gutteridge:* What happened to the Austrian Whitehead company in the end? Is that still in existence or has it been wound up?

Mr. Reid Young: The original company went into liquidation in 1924 and then they took them over.

Sir Charles Craven: Our sole interest in torpedo work now is in the Whitehead works at Weymouth, of which I am chairman. It is a branch of Vickers-Armstrongs.

2290. *Chairman:* Then if you turn over the page you see the comment of Sir William Jowitt about transfer of profits. He suggests an example of how profits can be manipulated by the Vickers group, by means of the internal sales of raw materials or partly finished goods at arranged prices between subsidiary or associated firms. Do you know to what he is alluding?

Sir Charles Craven: He says they can be manipulated; he does not suggest they are manipulated. But in any case he is wrong. The Government can check, for instance, a forging coming from Sheffield for a gun. The Government have a right to check anything going into the Vickers-Armstrongs works at Elswick.

2291. *Chairman:* Then, Mr. Noel Baker in his evidence says that there is evidence of a financial connection between the private manufacturers and the Air League, and that the Air League has been active in promoting the cause of "air power." He says that it is a fact worth mentioning that the secretary-general of the Air League, who has been in charge of its affairs during the period of the Disarmament Conference, came to his office from the post of director of Vickers Aviation, Ltd., and another post as director of Supermarine Aviation, Ltd. Is that correct?

Sir Charles Craven: No, Sir. He was with us, but there was a gap of 18 months or 2½ years.

Sir Robert McLean: He left us in November, 1931, and took the post at the Air League in April, 1933.

2292. *Chairman:* That is all I wanted to ask about that. Now I want to ask about some of these letters. What I want particularly to refer to is the agreement which you, or Vickers, made with the Electric Boat Company. Have you these books—*Hearings before the Special Committee of the United States Senate investigating the Munitions Industry?*

Sir Charles Craven: Yes, Sir.

2293. *Chairman:* It is Part I, page 317, and is Exhibit 12. That is a very long document and it has to do, has it not, with the business of making and selling submarines?

Sir Charles Craven: Yes.

2294. *Chairman:* It is confined to that?

Sir Charles Craven: Yes.

2295. *Chairman:* And it provides, does it not, that as between Vickers and the Electric Boat Company certain countries should be excluded altogether from the agreement?

Sir Charles Craven: Yes.

2296. *Chairman:* And that certain other countries should be reserved for Vickers and certain others for the Electric Boat Company?

Sir Charles Craven: Yes.

2297. *Chairman:* And then there is a provision as to the payments that should be made from one to the other in the event of business being done in any of the reserved territories or the common territory. Is that right?

Sir Charles Craven: That is correct.

2298. *Chairman:* Now I want to know what was the business reason for that agreement being entered into?

Sir Charles Craven: May I read a memorandum that I submitted to you, Sir, about the whole history of the business, because it goes back to 1900?

2299. *Chairman:* Is it the STATEMENT BY SIR CHARLES CRAVEN ON THE RELATIONS BETWEEN THE ELECTRIC BOAT COMPANY OF AMERICA AND VICKERS-ARMSTRONGS LTD. Is that the document?

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Sir Charles Craven: Yes.

2300. *Chairman:* Will you read that? Because I think it is important.

Sir Charles Craven (reading):

STATEMENT BY SIR CHARLES CRAVEN ON THE RELATIONS BETWEEN THE ELECTRIC BOAT COMPANY OF AMERICA AND VICKERS-ARMSTRONGS LIMITED.

(1) The negotiations in connection with the construction of the first five submarines for the British Navy were in the first instance conducted in 1899/1900 between the Admiralty and the Holland Torpedo Boat Company, which later became the Electric Boat Company. The first intimation that Vickers had of these negotiations came to them from Mr. Isaac Rice, who was then the President of the American Company. He called on Colonel Vickers and Mr. Albert Vickers, and told them that he was prepared to grant Vickers an exclusive licence for building submarines for the British Navy to the American drawings. He was informed by Colonel Vickers and Mr. Albert Vickers that there was no possibility in their opinion of the British Navy building submarines and, by so doing, lend encouragement to the construction of a type of vessel which, if adopted throughout the world, would seriously jeopardise England's otherwise favourable position as an island country. Mr. Rice replied that he had received an order for five submarines, provided they could be built in England. I have no confirmation of the meeting referred to, but I was certainly told about the negotiations some years afterwards both by Mr. Albert Vickers and by Mr. Rice. The only document I have which confirms that the negotiations originated between the Admiralty and the American Company and not between the Admiralty and Vickers, is a letter from Mr. Rice to the Secretary of the Admiralty, dated 18th October, 1900, a copy of which is attached. It is a short letter, and I will read it.

The Secretary of the Admiralty,
Whitehall,
London, S.W.1.

18th October, 1900.

Sir,

Re Holland Sub-Marine Torpedo Boat.

Referring to the interview I had the honour of having with the Controller of the Navy on the 16th instant, when I requested permission to arrange for constructing the five Boats referred to in your favour of the 13th instant at the works of Messrs. Vickers Sons & Maxim, Ltd., and which permission you were good enough to give me, I have now to inform you that I have made all the necessary arrangements with this firm, and have authorised them to negotiate with you in regard to all details in connection with this business.

I have, furthermore, handed them your letter of the 13th instant for the purpose of replying to your various queries contained therein.

I have the honour to be,

Sir,

Your obedient Servant,

(Signed) ISAAC L. RICE,
President of the Holland
Torpedo Boat Company.

I have not the letter of the 13th October from the Admiralty to Mr. Rice. I am sorry, Sir, but I cannot find a copy anywhere (*reading*).

(2) During the Inquiry in Washington, Mr. Carse, the present president of the Electric Boat Company, who, perhaps, does not know the old history of the agreement between the Electric Boat Company and Vickers, is reported to have stated that "He believed the British Government had no knowledge of the agreements between

Vickers-Armstrongs and the Electric Boat Company, but the Electric Boat Company had advised the United States Navy Department of them." This evidence is incorrect. Paragraphs 7 and 11 of Admiralty letter to Vickers of the 13th December, 1900, prove that the Admiralty had full knowledge of the agreement between Vickers and the Electric Boat Company. In this letter the Admiralty offer Vickers the contract for the first five Holland submarines. In Vickers' letter to the Admiralty dated 27th October, 1900, they refer to their "rights of design, patents, etc., being respected during the terms the patents or any improvements thereon are in force," and enclose a list of patents which are the property of the Holland Torpedo Boat Company.

I have enclosed those letters in full.* There is nothing in them to hide, but they are very long and they are Admiralty documents. You have them before you. I will read them if you wish.

2301. *Chairman:* What is the date?

Sir Charles Craven: One is dated 27th October, 1900. Would you like me to read that?

2302. *Chairman:* Who is it from?

Sir Charles Craven: It is from Vickers, Sons & Maxim, Limited, to the Admiralty.

2303. *Professor Gutteridge:* It is headed "Strictly confidential"?

Sir Charles Craven: Yes. I have obtained permission from the Admiralty to use the document.

2304. *Chairman:* You might read this one because it is an indication of the type of correspondence that was passing.

Sir Charles Craven (reading):

Strictly Confidential.

The Secretary of the Admiralty,
Admiralty,

Whitehall, S.W.

Oct. 27th, 1900.

Sir,

Your letter of the 13th instant addressed to Mr. Isaac L. Rice has been handed to us to deal with, we having entered into an agreement with the Holland Torpedo Boat Company of America, for the exclusive manufacturing rights of boats under their patents, together with any improvements which they may make from time to time.

Furthermore, this agreement includes the manufacture for Her Majesty's Government of any boats required by them, and we have received from the Holland Torpedo Boat Company a guarantee that the conditions to be enumerated hereafter will be fulfilled by the boats supplied by us to Her Majesty's Government, and will be in every respect similar to the best submarine boat which is now under manufacture for the United States of America.

Our agreement also includes the service of an engineer who has had experience in the manufacture of boats in America, and also the use of a trained crew which will be at the service of the Admiralty for the purpose of instructing a British naval crew in the working and general operation of the boat under all circumstances of service.

The actual time for the manufacture of these boats is rather difficult for us to compute, as the drawings of the boat have not yet reached us, but they should do so in the course of a few days, but from experience in America, we are led to believe that we should have no difficulty in supplying the Government with the first boat about nine months after the signing of the contract.

The subsequent four boats would follow very quickly after the first boat, but, from the inter-

* See Appendix 19, p. 431.

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view our Director, Lieut. Dawson, had at the Admiralty, we understand that it would be the wishes of the Admiralty first to thoroughly test the first boat before finally completing the remaining four.

In regard to paragraph 2 of your letter, we, of course, shall make no objection to the trials taking place in an English port, as the boats, being built at Barrow, they can easily be sent round to any port you determine upon.

We note that facilities will be given in Her Majesty's Dockyards for carrying out at the Company's expense any work that may be necessary, after the arrival of the boats in England. This point should not arise, in consequence of the boats being built in England, but as it will be necessary for the trained crew to remain at the port during the carrying out of the trials and for the purpose of instruction we are prepared to agree that the cost of their maintenance and services shall be met by the Admiralty paying the actual cost only.

We think that this arrangement will be best suited to this particular case, as the services of the crew may be required for a short or a very prolonged period.

In regard to the conditions which our Company are prepared to undertake that the boat shall fulfil at the official acceptance trials, we submit for your consideration the following:—

2305. *Chairman*: I do not think you need read the remainder.*

Sir Charles Craven: No, it is purely historical.

2306. *Chairman*: It deals with the specification of the vessels?

Sir Charles Craven: Yes.

2307. *Chairman*: Will you go back to your statement?

Sir Charles Craven: (reading.)

(3) According to the early correspondence between the Admiralty and Vickers the construction of Submarines for the Admiralty commenced in the year 1900. By an Agreement of 17th May, 1902, between the Admiralty and Vickers the Admiralty agreed to confine Submarine construction to Vickers for five years, provided that Vickers did not build, design or sell to any other Government any Submarine Boat of any kind whatever before 1st April, 1909.

This Agreement of 17th May, 1902, was cancelled by a further Agreement dated 14th May, 1906, which again tied Vickers to the Admiralty for five years from 1st April, 1906, and precluded Vickers from foreign business for this five years and two years thereafter, except with the consent of the Admiralty. In this Agreement, however, the Admiralty only bound themselves to give us one half of the Submarines ordered, but agreed not to invite other Firms to compete provided Vickers could give satisfaction regarding deliveries.

(4) It will be seen that the closest possible liaison existed between the Admiralty and Vickers in connection with the construction of the "Holland" type submarine for the British Navy up to 1911. About that time, the Admiralty desired to consider other foreign designs and Scotts of Greenock made an arrangement with the Fiat San Giorgio Company, and Armstrong Whitworths with Schneider. Two or three submarines were built under this Agreement.

(5) Much has been made of the fact that profits are shared with the Electric Boat Company. To the best of my belief, the arrangement of profit sharing instead of payment of a fixed royalty in the original agreement with the Electric Boat Company was due to the fact that Vickers were not prepared to put down the necessary capital for the equipment of special shops and the provision of the necessary special jigs and tools for the production of a type of vessel the future of which was

in doubt. This capital expenditure was equally divided between the American Company and Vickers, and a division of profits reducing from two-thirds to the Electric Boat Company and one-third to Vickers down to 40 per cent. to the Electric Boat Company and 60 per cent. to Vickers was provided for in the agreements. A settlement of the Capital Account was made by a cash payment to the Electric Boat Company shortly after the Armistice, and the plant is now the property of Vickers-Armstrongs.

(6) In the year 1924, when Submarine construction appeared to be reviving for the British Navy on a modest scale, I approached Sir Trevor Dawson and told him how hard we were going to be bit by the Electric Boat Company agreement in that we should have to pay a proportion of our profits to the Electric Boat Company, and other British firms who had acquired all information during the War would not have to do so. I remember distinctly telling Sir Trevor Dawson that in my opinion the agreement should not be renewed when it automatically expired in 1927. Sir Trevor did not agree with me entirely, because he felt that owing to our old associations with the Electric Boat Company we should run a considerable commercial risk if we suddenly cancelled our agreement. Sir Trevor arranged for a representative to go to America and the result of the visit was a new agreement expiring on the 31st December, 1937. . . .

2308. *Chairman*: Is the new agreement the one to which I referred?

Sir Charles Craven: That is the one.

2309. *Chairman*: Of 1924?

Sir Charles Craven: Yes. (reading.)

. . . which provided for a royalty of 3 per cent. on British submarines built by us and a division of foreign business between the two companies. Much has been made of this carving up of the world into zones of operation, but it seems to me that the only reason for this arrangement was that the Electric Boat Company in the meantime had agreements with certain foreign countries and had associations with others, and, therefore, in some cases they could not agree to our interference. In others, such as Peru, for which country they had been building submarines in America, they did not feel disposed to give us a licence to compete with them.

(7) I wish to make it clear that in my opinion the "Holland" (U.S.A.) submarine was the first practicable submarine vessel produced in the world. I would go further and say that in 1914, when the American "H" boats were bought by the British Navy after assembly in Montreal, the design of these small submarines was then the best in the world.

(8) Particular reference has been made to certain letters of mine to Mr. Carse, the president of the Electric Boat Company, and Mr. Spear, a vice-president, who really carries out the duties of managing director. I should like to make it clear that I have known Mr. Spear intimately ever since I joined Vickers in 1912, and this accounts for the fact that my letters to him are written in a very free and friendly way. Naturally, had I known that such letters would be published, the wording would have been different, but there is nothing in the letters which will not bear close investigation, and practically every letter in my file was written with one object only and that was to impress on the Electric Boat Company the vital necessity of their reducing the 3 per cent. royalty paid on British submarines, in order that I could more satisfactorily compete with the British war-time builders, who had no such royalty to pay. The success of the efforts, which I have made in this direction, is evident when it is appreciated that in no case since the signature of the

* See Appendix 19, p. 431.

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[Continued.]

new agreement has royalty in accordance with the agreed scale been paid on British submarines, but always some mutually agreed amount considerably less, thus enabling us to reduce the price quoted to the Admiralty.

(9) I am confident that at Barrow we can build submarines more cheaply, more quickly and more efficiently than any other builder in the country, and possibly in the world, but in order to place ourselves in this position we have spent very large sums of money since the War in equipping ourselves for this very special and difficult form of construction.

(10) During the periods of the agreements with the Electric Boat Company the closest possible relationship has existed between the two companies for the obvious reason that we wished to obtain all technical information from the Electric Boat Company. In no case has any secret information been divulged by Vickers to the Electric Boat Company, or vice versa.

Note.—It is of particular interest to note that for 13 years Vickers were precluded from building submarines for foreign navies.

2310. *Chairman*: This agreement apparently deals with what you call in your statement the Holland submarine?

Sir Charles Craven: Yes, that was the type; but the Holland Company became the Electric Boat Company.

2311. *Chairman*: Was that particular type of submarine protected by patent, or was it merely that they had the drawings?

Sir Charles Craven: No, Sir. At that time when they started they had had their vital master patents.

2312. *Chairman*: It was protected by patent?

Sir Charles Craven: Yes, very firmly in all countries of the world.

2313. *Chairman*: Then the effect would be that unless you made some agreement with them it would not be possible to build that type of submarine?

Sir Charles Craven: No.

2314. *Chairman*: When you say "no" you mean "yes"?

Sir Charles Craven: Yes. Similar arrangements were made with other foreign countries. For instance Dutch firms to-day are building under licence.

2315. *Chairman*: A great deal of correspondence passed between you and the officials of the Electric Boat Company. I do not want to trace it all through, but did the bulk of that correspondence have reference to this agreement and the terms of working under this agreement, or were there other matters referred to in the correspondence?

Sir Charles Craven: I do not think there was anything that I can remember that did not refer to the working of this agreement; but, as I say, it was done in a personal way.

2316. *Chairman*: I am not referring to the terms that you used or the language that you used, but to the subject-matter of the documents.

Sir Charles Craven: I cannot remember anything else.

2317. *Sir Philip Gibbs*: I think we may be able to refresh your memory a little, Sir Charles.

Sir Charles Craven: Be it so. I cannot think of anything.

2318. *Chairman*: I want to refer to certain of the letters in the same Part at page 332. There is a letter dated 30th July, 1932:—

H. R. Carse, Esq.,

The Electric Boat Company,
40, Wall Street, New York.

My Dear Mr. Carse,

Very many thanks for your telegram which, being decoded, reads as follows:

"Referring to your telegram of the 25th and to your letter of the 18th ultimo, the directors will

accept £10,000 settlement of 'Thames', 'Porpoise' 'S' engines, also agree to £7,500 'Thames', £3,000 'S' boat tender(s). Stop. We cannot now decide about possible business next March."

First may I suggest that even in code it is better not to mention any names of ships, as I am rather afraid that such telegrams might get into the hands of our clients.

To whom were you referring as "our clients"; do you remember?

Sir Charles Craven: I suppose it must have been the Admiralty. I cannot see much point in it. I was writing to an American trying to stop him sending telegrams and letters mentioning His Majesty's ships. It is never done by anybody—not by telegram at any rate—and I think I was trying to emphasise the desirability of his not doing so. That is all. But it is quite possible—it was certainly published by the Admiralty months before this—that that ship might not then have been christened. I cannot say.

2319. *Chairman*: Mr. Arnold-Forster suggests that inquiry should be made as to whether royalties paid by Vickers to the Electric Boat Co. were disclosed to the British Admiralty. It is quite clear from your correspondence that the agreement was disclosed to the Admiralty, but were the terms of it disclosed to them indicating that these royalties were payable, or paid?

Sir Charles Craven: I cannot tell you. I do not know. As to whether they saw the agreement—I do not think they would see the agreement.

2320. *Chairman*: But they knew it existed?

Sir Charles Craven: They must have known it existed.

2321. *Professor Gutteridge*: They must have known that you would be paying royalties?

Sir Charles Craven: Yes. I want to make it clear there was no collaboration at the time with regard to the price of these vessels. We were in strict competition with the builders and any royalties were paid out of our pocket.

2322. *Chairman*: But they knew there was an agreement and they knew it was an agreement enabling you to do so?

Sir Charles Craven: Yes.

2323. *Chairman*: Therefore, they knew you must have been paying patent royalties.

Sir Charles Craven: I do not know whether they knew in regard to the 1924 agreement, the terms being a flat rate—

2324. *Professor Gutteridge*: It would not affect them?

Sir Charles Craven: I do not think so.

2325. *Dame Rachel Crody*: But you did say in that letter that "it would be awkward if our clients asked me about it"?

Sir Charles Craven: I know. I do not know why I told them that, unless I was trying to impress upon people in America not to write silly letters.

2326. *Professor Gutteridge*: I suppose the Admiralty would not agree to have a telegram sent *en clair*?

Sir Charles Craven: I think they would dislike it very much.

2327. *Chairman*: In the same Part, page 195, there is a letter which has been referred to a great deal, with reference to your trying to ginger up the Chileans to take three more boats. I think you explained that to us yesterday. That is Exhibit 124.

Sir Charles Craven: There were six and a depot ship and we built three and a depot ship. I think actually it was the depot ship they were short of cash for. There were two separate contracts. We built the depot ship and three and the original scheme was for a depot ship and six.

Mr. Yapp: It is true that we built only three submarines out of their original programme of six.

2328. *Chairman*: At page 431 there is a letter, Exhibit 162?

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Sir Charles Craven: Referring to a Portuguese tender?

2329. *Chairman:* Yes. Mr. Arnold-Forster in his evidence suggests that the reference to arrangements with Hawthorn Leslie's and Thornycroft's calls for explanation. What does that refer to? Does it mean a standing arrangement or a special agreement?

Sir Charles Craven: It was a special arrangement. It was quite a large naval programme for a country of the size of Portugal, including submarines, and at that time an aircraft carrier, destroyers, sloops and so on. Some of these were to be built in Portugal and some abroad. At that time when the inquiry was issued they wanted rather long-dated payments. Portugal was not then in quite the same wonderful position that she is to-day, so we formed a team of what we thought were the three strongest British firms at that time and we tendered competitively for certain products in which we specialised. Thornycroft's tendered for destroyers and Hawthorn Leslie's for sloops. It was not quite a joint tender, we were three separate firms, but we were a team. We were in competition not only with the continent but with other British firms.

2330. *Professor Gutteridge:* Were Yarrow's in?

Sir Charles Craven: Yarrow's, unfortunately, got the contract for the destroyers. Our team partly failed, but we got the armament, submarines and sloops. May I supplement that by saying that when we are in competition with a country like Italy our one firm is in competition with the whole of the Italian shipbuilding industry? This was a miniature attempt to bring the most efficient group together to try and knock out the foreigner.

2331. *Professor Gutteridge:* I suppose in the case of a country like Portugal there is a certain advantage in having their warships built by a British firm, in a friendly country.

Sir Charles Craven: You mean from the national point of view?

2332. *Professor Gutteridge:* From the national point of view.

Sir Charles Craven: I think there is every advantage.

2333. *Chairman:* The last reference in this document—Exhibit 84 (Part I, page 375)—deals with the export of arms to Peru in 1934. It is in regard to 1,200 rounds of 3-inch ammunition for 50,000 dollars shipped to Para.

Sir Charles Craven: I will ask Mr. Yapp to deal with that if he does not mind.

2334. *Chairman:* What is suggested in reference to this licensing question is that you should be asked under what licence that shipment was made.

Mr. Yapp: The ordinary Board of Trade export licence.

2335. *Chairman:* Was that the open one?

Mr. Yapp: No, a special application was made disclosing fully the material to be shipped and a licence was granted.

2336. *Chairman:* Did the licence indicate what the article was?

Mr. Yapp: Yes.

2337. *Dame Rachel Crowdy:* To where were you licensed to ship? It would appear that when there was tension between Peru and Colombia, Vickers supplied 1,200 rounds of 3-inch ammunition for 50,000 dollars. It was shipped to Para in Brazil, then from Para to the West Indies, and from the West Indies handed over to a Peruvian ship. It was part of a contract by which the Electric Boat Company was delivering two gunboats to Peru. I should be extremely interested to know to where the licence was issued.

Mr. Yapp: The original export licence stated the ultimate destination as being Peru via a South American port. There were changes in the place of delivery before the stuff was shipped. The material was finally shipped to Kingston, addressed to the captain of a Peruvian vessel, after the Foreign Office, at our request, had obtained through the Colonial Office permission from the Government of Jamaica for trans-shipment.

2338. *Professor Gutteridge:* As a matter of fact, I suppose it was finally destined for Iquitos?

Mr. Yapp: Yes.

2339. *Professor Gutteridge:* And then they changed their minds.

Mr. Yapp: Yes.

2340. *Professor Gutteridge:* The fighting was on the upper reaches of the Amazon.

Mr. Yapp: The instructions for shipment we got from the Electric Boat Company.

2341. *Professor Gutteridge:* To send them up the Amazon?

Mr. Yapp: Yes. That is what happened and the final method of delivery was made quite clear to the British Government, who knew all about it.

2342. *Dame Rachel Crowdy:* They knew about this method of trans-shipment?

Mr. Yapp: Yes.

2343. *Dame Rachel Crowdy:* That is interesting to me, because it is similar to some of the illicit transactions in the opium traffic, where opium is shipped to one port and then trans-shipped to another.

Mr. Yapp: The material was finally handed over to a Peruvian vessel.

2344. *Chairman:* I would like to ask a question about what we call in this country bribery. I do not know whether you have the report of our Proceedings containing the evidence of Mr. Walton Newbold. I want to refer to page 142, Fifth Day.

747. *Dame Rachel Crowdy:* First of all I should like to go back to a question which the Chairman has just asked, to ask Mr. Newbold if he would define to us what he considers comes under the heading of a bribe or bribery.

Mr. Walton Newbold: I consider that that is a matter which varies with the standard of morality of the country in which business is being done and the standard of morality of the people doing business. I can conceive that business methods in the country of Ruritania in South-Eastern Europe, which I visited some years ago in a semi-official capacity, are very much different, seeing that the editor of their chief economic paper followed me to the railway station and followed me along the platform at the railway station, pointing out that it would not be possible for us to get any contracts in Ruritania unless we were prepared to grease the officials and the people placing the contracts. I should imagine, knowing the United States pretty well at any rate, and having seen something of the conditions under which public works contracts were being given out in 1933, that they have a very much more liberal interpretation of what constitutes a fair business practice than would be accepted in a British court of law, let alone in leading Nonconformist circles in this country. More than that I should not like to say; and the question then arises as to how far a big employer of labour in this country is to forego export trade, or how far he is to forego his principles. After all, practically all commerce carried on outside of the few countries in North-Western and Central Europe is characterised by what would be called in this country grave irregularities, and I think we are face to face with this problem of how far we can retain our foreign markets if we are to resort to Christian or to legal practices. I think it is impossible to define—

* See also oral evidence before U.S. Senate Committee, Part I, pp. 156-7.

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748. Sir Philip Gibbs: Are you in favour of bribery?

Mr. Walton Newbold: No, of course I am not.

749. Sir Philip Gibbs: You seem to suggest it.

Mr. Walton Newbold: No, I do not. I merely try to face up to the facts of life.

I want to know from your experience of your companies whether the condition of things which Mr. Walton Newbold there describes is general, in reference to trading in those particular countries with regard to large contracts—not merely armaments contracts but industrial contracts.

Sir Charles Craven: That is a difficult thing to answer, but I should say roughly that the further you get away from here the looser are the business morals.

2345. Chairman: I want to know not only as a matter of morality but as a matter of law. In those countries to which Mr. Walton Newbold is alluding, is there a law corresponding to our law with reference to bribery, or is it looked upon as a matter of course against which there is no legislation? Do you know that?

Sir Charles Craven: I could not tell you, Sir, but I do know this, that, when this American Inquiry started, a lot of countries had investigations as to whether the charges that had been put up against certain of their officials could be proven and they all decided they could not. I remember two or three of the South American countries did. I do not know the law, Sir. I know that it is very wide in this country.

2346. Professor Gutteridge: Have you any doubt in your mind that a good deal of it goes on?

Sir Charles Craven: It is only what I think; it is not what I know. I do not think that any goes on to create armaments.

2347. Professor Gutteridge: As you have said, the further you get away from this part of the world, the more likely you are to meet with it, broadly speaking.

Sir Charles Craven: Yes. I do not think in the armament industry—about which I know more than I do of other industries—anything is done to create a demand for armaments. I think if it is done it is a question of one firm trying to get business away from another.

2348. Dame Rachel Croody: When you say that the further you get away from this country the looser are the morals in that connection, do you mean the looser the morals of the briber, or of the bribee? Because that is quite a different thing.

Sir Charles Craven: I really do not know. I am thinking of the country you are living in.

2349. Chairman: It is useless to be a briber unless the bribee accepts the bribe.

Sir Charles Craven: The briber might be a native of that country. It is quite likely he would be.

2350. Chairman: Do I understand that, whatever the facts may be with regard to this particular matter, it is quite clear that if any of your agents do anything of this kind, they pay for it out of their commission?

Sir Charles Craven: Yes.

2351. Chairman: There is nothing extra paid by your firm beyond commission. The agreement provides that they are paid on commission and if they make any other payment they do so out of their commission.

Sir Charles Craven: Yes. They do it out of the 3.4 per cent. That is the average selling expense of the foreign armament business.

2352. Professor Gutteridge: I suppose you issue no instructions one way or the other on such questions.

Mr. Yapp: No, we do not.

Sir Charles Craven: The Commission may be interested to know that quite recently we were trying to get a very large foreign contract. A

mysterious person said that he had very large influence and that if we gave him x per cent. he could, through his influence get us a contract. We told him that we did not want anything to do with him—and we got the contract. I do not know whether that is bribery. He had nothing to do with it. He was a friend—so he said—of the buyers, but at any rate we did not do it, and we got the contract.

2353. Professor Gutteridge: I think sometimes it is regarded as a remuneration for services rendered. That is to say, you go to somebody who is a friend of the Minister of Marine—generally a lady—and you make an appeal to her and pay her something to use her influence with the Minister of Marine in that country. That is the sort of thing that happens. It is not quite the same thing as bribery.

Sir Charles Craven: I accept your standard of morality, Sir.

2354. Professor Gutteridge: These sorts of things are lumped together, and I think very often when people talk about bribery that is what they mean. There are people who, in the Italian language, are called "Affaristi." They are people who go round government offices using their influence. In the torpedo trade, I have been told, at one time there was a lot of that sort of thing went on. Now I do not know whether I ought to put questions with regard to your alleged international ramifications to you or to someone else, Sir Charles.

Sir Charles Craven: One of us will answer, Sir.

2355. Professor Gutteridge: It has been suggested, you know, that there is a kind of arrangement of interlocking directorates by which you are in some way or other connected with Skoda and Schneider. In that connection two companies have been mentioned—the Anglo-International Bank and the British and Allied Investment Corporation. Are you interested in those two companies as a firm?

Mr. Reid Young: In the Anglo-International Bank, as Sir Herbert Lawrence explained yesterday, we did hold shares, and we still hold some shares in that company. Sir Herbert was chairman of the bank up to last year. But beyond having an investment in the company it has no interest in our affairs and we have no interest in it in any shape or form. The company was formed out of a committee that was appointed, in 1920 I think, by the Board of Trade to recommend methods for assisting British manufacturers to do business on the continent after the War. It was, I think, formed in the nature of a finance company or a banking house of some kind and the Metropolitan Carriage Company, which we subsequently bought up, and Vickers took a certain interest in this proposal, as a result of which we acquired certain shares of the trade corporation.

2356. Professor Gutteridge: You went into it with the knowledge of the British Government?

Mr. Reid Young: It was on the recommendation of the British Government. That company got into difficulties, and about 1926 it was amalgamated with a company called the Anglo-Austrian Bank, which was a company of the same nature, for assisting British manufacturers to do foreign business. That was amalgamated into the Anglo-International Bank. We still hold some shares in that company, but, as I say, it takes no interest in our affairs.

2357. Professor Gutteridge: What about the British and Allied Investment Corporation? Is that a similar concern?

Mr. Reid Young: No. That was an English finance house, of which Mr. Carter was a director. He came into touch with us when we started to take an interest in the Darlington Forge. He was a director of the Darlington Forge at that time. He acted as an intermediary with regard to the purchase of the shares of the Darlington Forge by Vickers and he remained on the board of the Darlington Forge for some six months afterwards.

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Eventually, when we got complete control of the Darlington Forge, Mr. Carter resigned from the board. Beyond that he had no connection with Vickers in any shape or form.

Sir Charles Craven: He was the representative of Skoda in England.

2353. *Professor Gutteridge:* I am not sure that that is not where the sting, if there be a sting, lies. It has been suggested that Skoda were interested in the British and Allied Investment Corporation.

Mr. Reid Young: Mr. Carter was the representative in England of Skoda.

2359. *Professor Gutteridge:* So to that extent he did put you in touch possibly with Skoda?

Mr. Reid Young: He did not in fact.

2360. *Professor Gutteridge:* It is also alleged that you got in touch with Schneiders through the other company?

Mr. Reid Young: The Polish company?

2361. *Professor Gutteridge:* Yes. Were Schneiders shareholders in that company?

Mr. Reid Young: Yes, at the invitation of the Polish Government—Schneiders and Vickers.

2362. *Professor Gutteridge:* How did the Polish Government come into touch with them?

Mr. Reid Young: The Polish Government after the War decided to set up an arsenal or establishment for the manufacture of munitions and they asked Schneiders and Vickers to advise.

2363. *Professor Gutteridge:* Somebody yesterday told me—I think it was Sir Herbert—that there never was any working arrangement either with Skoda or Schneider or any German firm. I just want to ask you a question about your submarine business. I notice somewhere or other reference is made to one of your catalogues or trade lists. This is in the Union of Democratic Control's evidence, page 141, second column. Perhaps you would turn that up and then you will have the entry in front of you. There is an extract given there from one of your lists in which you state that you are

in the unique position of possessing the world patent rights of all the useful modern developments in connection with submarines, mines, depth charges, and paravanes.

Sir Charles Craven: "Submarine mines," not "submarines."

2364. *Professor Gutteridge:* "Submarine mines" is it?

Sir Charles Craven: I imagine so. It is not true with regard to submarines. I have not the advertisement.

2365. *Professor Gutteridge:* It may be my transcript that is wrong.

Sir Charles Craven: I think this is either a misprint of the evidence or the evidence was untrue.

2366. *Professor Gutteridge:* Then the print here is wrong, is it?

Sir Charles Craven: Either the print is wrong or the evidence is wrong.

Mr. Yapp: They put a comma after "submarines." It should be "submarine mines."

2367. *Professor Gutteridge:* You can easily verify that.

Sir Charles Craven: Yes, from one of our advertisements. It is definitely incorrect.

2368. *Professor Gutteridge:* I do not know that that necessarily excludes my question, because if that is so, if you hold the master patents for a lot of these things, they can only be manufactured abroad with your consent. The Germans could not make any paravanes without coming to some arrangement with you.

Mr. Yapp: Not unless they infringed our patents.

2369. *Professor Gutteridge:* As regards mines, does it necessarily follow that if a submarine mine is made, or depth charges are manufactured, your patents come into the matter?

Sir Charles Craven: We think ours are very very good, Sir. There are other patents, of course.

2370. *Professor Gutteridge:* Are there any agreements relating to submarine mines and depth charges with any other firms?

Sir Charles Craven: In France we have a license, and in Holland, and in Spain—our Spanish company, of course. They are all returned to you in the return which we have made.

2371. *Professor Gutteridge:* We shall find them in that appendix?

Sir Charles Craven: Yes, quite so. It is Appendix No. 7.* I think.

2372. *Professor Gutteridge:* Now I want to pass on to something else. One of the suggestions that is made against you is that you and other firms from time to time put your heads together in order to put up the price against our own Government. I think your answer to that is No, definitely, and I think you have explained to us why that is impossible. That is so, is it not? I do not want you to go over the points which you have already dealt with.

Sir Charles Craven: I am not saying there is no collaboration between the firms who are tendering to the Government.

2373. *Professor Gutteridge:* But is there a deliberate conspiracy to put up the prices? That is what is alleged against you. You have the evidence before you.

Sir Charles Craven: "Ganging up" I think is the expression, Sir.

2374. *Professor Gutteridge:* Let us look at page 330 in the first volume of the American report. Have you that before you?

Sir Charles Craven: Yes, Sir.

2375. *Professor Gutteridge:* That is one of the letters which has been used against you. It is a letter of the 7th October, 1927—Exhibit No. 18.

2376. *Professor Gutteridge:* There are several questions which arise out of that letter. I do not know whether it is worth while reading the letter.

Sir Charles Craven: This is a letter which I referred to yesterday, which was quoted in my letter to the First Lord of the Admiralty. It was published this morning, I think.

2377. *Professor Gutteridge:* You explained yesterday, I think, the question of the three boats, and I understood you to say that just at that moment you were thinking of amalgamating with Armstrongs?

Sir Charles Craven: Yes.

2378. *Professor Gutteridge:* And it would have been very awkward if there had been a rival tender and therefore you got Armstrongs to put in a dummy tender, if I might call it so.

Sir Charles Craven: It was not quite that. There were six boats to be built, and I put in a price for Armstrongs higher than the one for Barrow. There were six boats to be built, and I did not want them to be built at Newcastle, because we knew we could build them cheaper at Barrow; but the difference in cost between the two ordinary estimators was very large—I mean the ordinary independent estimators.

2379. *Professor Gutteridge:* What do you mean by the independent estimators?

Sir Charles Craven: The estimators of Vickers and of Armstrong-Whitworths. I had not at that time taken over the joint managing directorship, and the difference was £40,000, or something of that sort.

2380. *Professor Gutteridge:* You were, in fact, the only people in it?

Sir Charles Craven: Oh, no, Sir. There were other firms.

2381. *Professor Gutteridge:* Perhaps we might have that later on.

Sir Charles Craven: There was a difference of 13 per cent. in their estimated cost of production at Newcastle, and Barrow's estimated cost.

* Not printed.

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2382. *Professor Gutteridge*: You mean you could build 13 per cent. cheaper at Barrow?

Sir Charles Craven: Yes, and now that we have combined the two firms we do build them all at Barrow.

2383. *Professor Gutteridge*: This letter has also been taken as suggesting that there was leakage from the Admiralty which reached you in an unauthorised manner. You will notice it at the end of the first paragraph. It says: *I have had a word with the Director of Contracts at the Admiralty, who is a friend of mine, and who would like this. He, I know, tried to get us the order for all five submarines last year; and then in the last paragraph but one you say: I have not yet procured a definite list of the firms who have been asked to tender this time, but I am told the same lot are in*”; and it is suggested that you had some roundabout way, as I understand it, of getting information from the Admiralty.

Sir Charles Craven: As to who was tendering, Sir?

2384. *Professor Gutteridge*: Yes.

Sir Charles Craven: But anybody can find out about that.

2385. *Professor Gutteridge*: There is no secrecy about that at all?

Sir Charles Craven: No.

2386. *Professor Gutteridge*: I suppose the detail is secret?

Sir Charles Craven: The tender goes in to the Admiralty in a sealed envelope, and we all think that is absolutely watertight.

2387. *Professor Gutteridge*: But would you go to the Admiralty and ask for the information?

Sir Charles Craven: I should have no compunction in going to the Admiralty and asking if so and so was tendering. I was not concerned with it at this time, but I should have now no compunction in going to the Director of Contracts, or to the people concerned at the Admiralty.

2388. *Professor Gutteridge*: It was not merely because you were *persona grata* at the Admiralty? I think that was the suggestion?

Sir Charles Craven: Not at all. But the other point I think is more serious, about the Director of Contracts. He is a head of a department. He does not place orders, but he writes a letter which is signed by him, and the Committee places the order. The only reason why he wanted us to do it was that it was a saving to the Crown by doing it that way.

2389. *Professor Gutteridge*: It was cheaper that way?

Sir Charles Craven: Yes; he could have got them cheaper that way.

2390. *Professor Gutteridge*: Then on the next page in the letter of 30th November, 1927 (Exhibit No. 19), you speak of being in a position of looking after Armstrongs and keeping them out of the picture?

Sir Charles Craven: There I am referring to the amalgamation.

2391. *Professor Gutteridge*: That is the amalgamation, and I do not think we need pursue that.

Now may I turn to another letter on page 406, which has also been stated to affect you. It is Exhibit No. 125, and in the last paragraph you say: *By skilful manoeuvring we have managed to get some of our competitors' prices in the Chilean competition put up, and so may have prevented a real price-cutting war which would have resulted in our taking the boats at a loss. That, of course, refers to competition abroad in a foreign country?*

Sir Charles Craven: Yes, these were the submarines for Chile. The first three were delivered.

2392. *Professor Gutteridge*: But who would be your competitors in this particular case?

Sir Charles Craven: Cammell Lairds of Birkenhead would be the firm. There is a very simple explanation of it.

2393. *Professor Gutteridge*: Then perhaps you will give it to us, will you?

Sir Charles Craven: Our agents cabled to us and told us that Cammell Lairds had quoted a price for the submarines which was ridiculously low. They had not built this particular type of submarine, and in view of the position, I went to the then managing director of my company—Sir Trevor Dawson—and explained the circumstances. As a result we went together to the chairman of Cammell Lairds and told him that we had been informed they had put in a price which we, in our experience, having already built this type, knew to be much below what they would cost. He informed us that they had quoted this price because their agent informed them that our tender was round about the same figure, and they (Cammell Lairds) thought that if that price was good enough for us, it was good enough for them. The price cabled to them by their agent was about £50,000 below our price.

2394. *Professor Gutteridge*: You mean you saved him from making a very bad mistake?

Sir Charles Craven: Yes. He withdrew his tender immediately.

2395. *Professor Gutteridge*: Then you go on to say something else in the same connection?

Sir Charles Craven: Is that in the same letter?

2396. *Professor Gutteridge*: No. That is about the British tenders. That is simply about the geographical spread of work.

Sir Charles Craven: It was comparable then with the position as it is to-day in the shipbuilding industry. It was even worse then, but I do not think it matters to our case. If I put in a tender for a whole flotilla of submarines to be delivered, it would not make any difference although I think you will remember that in the First Lord's letter prices were the first consideration, and we have to take that into calculation.

2397. *Professor Gutteridge*: In one of these letters—I do not think you say it, but somebody else says that the result of friendly competition would give compensation to the loser?

Sir Charles Craven: Yes, I think that is said somewhere.

2398. *Professor Gutteridge*: I do not know where it came from, but the phrase stuck in my memory—“friendly competition with compensation to the loser”. What is the idea of that?

Sir Charles Craven: The loser would get something for all the trouble he had taken in preparing estimates and tenders, and so on.

2399. *Professor Gutteridge*: Is that genuine competition, or not?

Sir Charles Craven: It might be, or it might not; but it is quite possible that two firms would send their commercial and technical experts to a foreign country to provide for, say, a submarine.

2400. *Mr. Spender*: Who would the loser receive compensation from?

Sir Charles Craven: From the winner, if he got it, Sir—if he got it.

2401. *Professor Gutteridge*: I find it a little difficult to appreciate how it can be genuine competition. I think you told me it was?

Sir Charles Craven: I say it might be, but it might not be.

2402. *Professor Gutteridge*: How could it ever be genuine competition?

Sir Charles Craven: If I were tendering for a vessel, and were to put in £1,000 to cover tendering expenses—

2403. *Professor Gutteridge*: You will never persuade me, as long as I live, that that is genuine competition.

Sir Charles Craven: It is genuine competition with each other.

2404. *Professor Gutteridge*: Well, I do not know in what sense you use the word “competition”.

Dame Rachel Crawdy: Arranged competition?

Sir Charles Craven: No, we should not know each other's prices. You would not see my tender, but if I got an order I might pay you such a sum of money as would recompense you for the expense

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you had undertaken in sending out people to make the tender and the estimate.

2405. *Chairman*: It is like a boxing match; there is a purse for the loser?

Sir Charles Craven: No. It is a matter of business; it is not a matter of courtesy.

2406. *Professor Gutteridge*: It is quite news to me that business men competing with one another are so good to each other.

Sir Charles Craven: After all, this is not one of my letters.

2407. *Professor Gutteridge*: No, that is quite true, and therefore I will not pursue it. If you will look at page 399, Exhibit 115, there is a letter written by Mr. Spear the vice-president of the Electric Boat Company, to Mr. Carse, and he speaks of a Commander Aubry who, I think, was a Peruvian officer?

Sir Charles Craven: Yes.

2408. *Professor Gutteridge*: And right at the beginning of the letter it says that this gentleman is planning to sail for Buenos Aires, and then Mr. Spear goes on to say: *We want him to stay in the Argentine long enough to give us full reports and to receive and carry out instructions from us. I have advised him in a general way that it may be our policy to support the bid of our English friends in the Argentine and that we may also decide to have a friendly controlled bid put in from Italy. Is that a similar sort of arrangement?*

Sir Charles Craven: I could not really say. That is from a member of the staff of a foreign company to his boss.

2409. *Professor Gutteridge*: But who are the English friends?

Sir Charles Craven: We should be his English friends. We are the English people entitled to speak for him.

2410. *Professor Gutteridge*: Can you remember that episode at all, or can Mr. Yapp?

Mr. Yapp: I cannot remember it.

Sir Charles Craven: The submarine was built in Italy; that is all I can remember.

2411. *Professor Gutteridge*: Did you not get the order?

Sir Charles Craven: No, I do not think we were allowed to tender. It is one of the Electric Boat Company's countries. We had not the local rights in the Argentine.

2412. *Professor Gutteridge*: I come to a more serious matter now, and I do not think you have been asked about this. It is on page 406, Exhibit No. 120, where you speak of the appointment of a gentleman called Percy Addison as director of dockyards, and you use these words in writing to Mr. Spear: *I wonder whether you have heard that our old friend Percy Addison is now the director of dockyards. I helped him all I could to get the job, and I think he will be an ideal fellow for it. It means his retirement, but it also means his having a permanent job for about ten years if he behaves himself. I do not know if that means if he behaves himself vis-a-vis the Admiralty, does it?*

Sir Charles Craven: Yes.

2413. *Professor Gutteridge*:—and as he has no private means worth talking about, you will appreciate what this means to him. I have suggested to him that you and I, and he and Johns (who is anxious to meet you), should have a party and thoroughly wet the appointment. Now, that letter has been used to suggest that there was some sinister arrangement between you.

Sir Charles Craven: Well, Sir, as regards the director of dockyards, I hope you will ask the government witnesses about this.

2414. *Professor Gutteridge*: But perhaps you had better give us your own version about it.

Sir Charles Craven: The director of dockyards does not buy a pennyworth from Vickers, or anybody connected with us, as far as I know. I was in submarines with Admiral Sir Percy Addison

in 1905, and we served together in the War, and he has been one of my greatest personal friends ever since; and when this job was going to be offered to him I gave him every commercial help that I could to qualify him to take over what is, in effect, a very big managing director's job.

2415. *Professor Gutteridge*: You mean you helped him to acquire the necessary technical knowledge?

Sir Charles Craven: Yes. He came to me and stayed with me in Barrow, and I did what I could to help him.

2416. *Professor Gutteridge*: You gave him a kind of training?

Sir Charles Craven: Yes, a sort of general idea of administration, which does not ordinarily come in the way of an admiral, to enable him to run a concern like his. He may be employing nearly 40,000 men to-day. But as regards buying from me, the director of dockyards cannot buy anything.

2417. *Professor Gutteridge*: Was it because he was a friend of both of you?

Sir Charles Craven: Yes. He and Spear went out in a submarine together in 1907, for diving exercises, he being an inspector for the Admiralty. But to suggest that there were any improper relations between me and Addison—well, anybody has got a very dirty mind who makes that suggestion.

2418. *Chairman*: The director cannot buy, but from a business point of view it is just as well to be friendly?

Sir Charles Craven: Yes, and from time to time we help each other now. When I started one of the modern cruisers, which have a great deal of welding in them, we had a great deal of consultation on it, and I am sure it is as much in the interests of the country as it is to my company.

2419. *Professor Gutteridge*: I quite agree. You have built some very big steamers at Barrow?

Sir Charles Craven: Yes.

2420. *Professor Gutteridge*: Some of the Orient liners were built there?

Sir Charles Craven: Five out of the six.

2421. *Professor Gutteridge*: May I ask a question arising out of that, or ought it to be addressed to somebody else? It was suggested by Mr. Noel Baker in the course of his evidence that when a man becomes an armament worker he is an armament worker and nothing else, and therefore if a firm which employs him stops making armaments, that man loses his job; he is no use for commercial work. Is that so?

Sir Charles Craven: Absolute rubbish.

2422. *Professor Gutteridge*: You mean you can turn a worker of that kind on to ordinary commercial work?

Sir Charles Craven: Yes, of a high class. We did try to do it with all kinds of industries after the War. It is possible to do it in the case of high class industries such as a passenger ship, as against a cruiser. There there is complete interchange.

2423. *Professor Gutteridge*: Could you tell me this. Do you keep a man working on armaments all the time, or do you shift him about between armaments and commercial work?

Sir Charles Craven: Generally speaking, on the armament work, if possible on the same run of work we should have the same man, say on gun mountings, right through the piece, or in submarine engine construction. We should try to keep them at it. But those are the very men whom we should not lose if things got bad in their particular industry.

2424. *Professor Gutteridge*: I suppose the majority of your men enter as apprentices?

Sir Charles Craven: Yes.

2425. *Professor Gutteridge*: And they are the sons of armament workers, are they not?

Sir Charles Craven: They are the sons of our workers in many cases. In some of the Tyneside works I obviously could not say that that is always

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so, because there are such a lot of other works on the river.

2426. *Professor Gutteridge*: I think possibly Mr. Reid Young could tell me this. I should like to know exactly what you mean by a finance company. The Broadway Finance Company, one of the companies which you mention, is a case in point.

Mr. Reid Young: The Broadway Finance Company was formed out of a company which was during the War a manufacturing company. We sold the business of that company after the War, but retained certain debts due to the company which had to be liquidated. We could not carry on the company under the name under which it was trading when it was manufacturing, so we took over certain of the assets of the manufacturing company and called it the Broadway Finance Company.

2427. *Professor Gutteridge*: It was a kind of dust-bin for bad debts, really?

Mr. Reid Young: Yes, and certain transactions such as the purchase of the Darlington shares were transacted through the Finance Company.

2428. *Professor Gutteridge*: When you speak of a finance company, it is a company which does not manufacture?

Mr. Reid Young: Yes. We use the expression to mean a finance company as distinct from a manufacturing company.

2429. *Chairman*: I wanted to ask something arising out of what the Professor has asked, but which you did not answer. He asked you as to whether you were accused of conspiring to raise prices.

Sir Charles Craven: Yes.

2430. *Chairman*: And you seemed to have some little difficulty in dealing with that matter, because I suppose the natural effect of all these associations that have been referred to—the object, partly, of the associations, and the effect of the associations—is in combination with other firms either to maintain prices or to raise prices?

Sir Charles Craven: Yes.

2431. *Chairman*: “Conspiracy” would not be the appropriate word with regard to that, but the avowed object of these associations is either to maintain or to raise prices?

Sir Charles Craven: Exactly what is happening in the coal trade to-day. We are exactly the same.

2432. *Chairman*: I only wanted you to explain the position. I saw you were in a difficulty in answering the question with regard to conspiracy.

Sir Charles Craven: Yes.

2433. *Professor Gutteridge*: I really ought not to have used the word “conspiracy”. I was really trying to convey in a picturesque way the sort of allegation that was being made against Sir Charles.

2434. *Sir Philip Gibbs*: I wanted to ask you a few further questions about your methods in your foreign export trade. There has been some laughter in court, quite justified, and some suggestions that ordinary business methods in certain foreign countries involve a certain amount of palm oil and bribery, and so on; and it seemed to be accepted both by you and by Mr. Reid Young and by Sir Herbert Lawrence that that was so. I think a distinction ought to be made on that point between the methods of ordinary commercial businesses and your own business, and I would like to ask you first of all whether you regard your particular business as a dangerous trade?

Sir Charles Craven: No, not while properly managed by ourselves and properly controlled by our country.

2435. *Sir Philip Gibbs*: You do not think, for instance, that your wares are any more dangerous or noxious than, we will say, boxes of chocolates, or sugar candy?

Sir Charles Craven: Or novels, no.

2436. *Sir Philip Gibbs*: Well, we will say not more dangerous than pig iron that is to be turned into ploughs and harvesters.

Sir Charles Craven: If the business is honestly managed, and properly managed, and properly controlled by the home country, no.

2437. *Sir Philip Gibbs*: You do not think, for instance, that any of these fancy things which you export to these other countries are likely to be more dangerous than children's Christmas crackers?

Sir Charles Craven: Is that really a question that is intelligent, or requires an intelligent answer, Sir?

2438. *Chairman*: If you can answer it, you had better answer.

Sir Charles Craven: I once nearly lost an eye with a Christmas cracker, and I have never lost one with a gun.

2439. *Sir Philip Gibbs*: That seems to be rather reassuring to the peoples of Europe; but these questions, which seem rather trivial, and which I have put in a light way, really go rather deep into the question which we have to consider; because I want to put it to you that the continual expansion of arms by your export trade abroad might have very unpleasant effects in the world. Do you agree with that at all?

Sir Charles Craven: I do not consider that by so exporting arms we are increasing the consumption of arms at all.

2440. *Sir Philip Gibbs*: You do not?

Sir Charles Craven: No.

2441. *Chairman*: I think that has been generally agreed up to now. If you were to stop exporting arms, I think the evidence up to the present is that it would not diminish the supply. The demand would be supplied by somebody else?

Sir Charles Craven: That is my opinion.

2442. *Sir Philip Gibbs*: I should like to suggest in a friendly way that your own activities really have rather increased the potential weapons of slaughter in the world. For instance, on page 194 of the American evidence, one of the American Commissioners appointed to inquire into this business of arms traffic, and so on, said that Sir Charles Craven was a pretty good trader, and Mr. Carse, who is a friend of yours, said “Oh yes.” Then Senator Clark said: “He would not be holding that job with Vickers if he was not,” and Mr. Carse said: “Yes, that was his job.” I must say, in a most friendly way, reading all your correspondence as published by the American Committee, that it does seem that you were a pretty good trader . . .

Sir Charles Craven: Thank you, Sir.

2443. *Sir Philip Gibbs*: . . . and extremely active in selling the goods of your firm?

Sir Charles Craven: Yes.

2444. *Chairman*: Yes; but I think that “a pretty good trader” has reference to this: it was the suggestion whether Sir Charles was not always trying to endeavour to reduce the amount of royalty he had to pay. I think it was in reference to that.

Sir Charles Craven: Yes. But Sir Philip is trying to turn the word “trader” into “salesman.” It is not written “salesman,” and when an American refers to a trader he means a business man.

2445. *Sir Philip Gibbs*: Yes, that is so; but I think your letters point to the fact that you were very keen, quite naturally and quite honourably, to sell your goods in other countries—as you say, to ginger up the demand.

Sir Charles Craven: I did not say I wanted to ginger up the demand for goods in other countries.

2446. *Sir Philip Gibbs*: You wanted to ginger up the demand from Chile?

Sir Charles Craven: I did not say anything of the kind. I said I wanted to ginger up the Chileans to place their business with us, and it is a mutilation of my expression if you say that that is trying to increase the total armaments of the world.

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2447. *Sir Philip Gibbs*: I think it would amount to the fact that you would have been disappointed if those extra three submarines had not been given to your firm?

Sir Charles Craven: They have not been built.

2448. *Sir Philip Gibbs*: They are not built?

Sir Charles Craven: No. If they are built, we hope to get them.

2449. *Sir Philip Gibbs*: I am not making any suggestion against you, but I am trying to develop the argument that this foreign trade is in dangerous goods, and therefore that your salesmen and agents abroad are not dealing with ordinary commercial goods. There is something rather special about it.

Mr. Yapp: Obviously they are not dealing with ordinary commercial goods. They are dealing with armaments; there is no doubt about that.

2450. *Sir Philip Gibbs*: Thank you very much. I want to deal with a few questions about the methods you have with your agents. In Sir Herbert Lawrence's evidence yesterday he gave us, as a matter of fact, your standard contract. He begins by saying that no encouragement at all is given to your agents abroad to force orders. I understood from him that that was so.

Mr. Yapp: Quite.

2451. *Sir Philip Gibbs*: I am putting it to you, Sir Charles, because, after all, you are the managing director and chairman of Vickers-Armstrongs.

Sir Charles Craven: I think you will notice in the opening letter from my company it says that Mr. Yapp is the director primarily dealing with agencies.

2452. *Sir Philip Gibbs*: But you would deal with that matter?

Sir Charles Craven: Jointly with Mr. Yapp.

2453. *Sir Philip Gibbs*: But I want to ask you this question, Sir Charles, because it is a question of general policy, and I take it you accept responsibility for arrangements with your agents?

Sir Charles Craven: As chairman of the company, yes.

2454. *Sir Philip Gibbs*: May I therefore direct my question to you?

Sir Charles Craven: I am sorry. Would you mind repeating it?

2455. *Sir Philip Gibbs*: I am just going to read to you the facts. The first sentence of the ordinary contract you make with an agent is: "To do your utmost to promote the sale of our products"—"to do your utmost." There is no sinister suggestion in that, but it does seem, of course, from that first sentence in the contract, that they are urged on behalf of the firm to increase their sales?

Mr. Yapp: This is the ordinary standard form of agreement that is issued to all Vickers' agents, whether they are selling commercial goods or armaments.

2456. *Sir Philip Gibbs*: Or armaments?

Mr. Yapp: Yes. It is not peculiar to armaments, and it has not been taken out in the case of armament agency agreements.

2457. *Sir Philip Gibbs*: But it includes armaments?

Mr. Yapp: Yes, it includes armaments, and it does mean that they are directed to promote our business under our direction, when a government has decided to purchase arms. There is no doubt about that; it is the agent's job to endeavour to get the order.

2458. *Sir Philip Gibbs*: I imagine you are very closely in touch with them?

Mr. Yapp: Yes.

2459. *Sir Philip Gibbs*: And that you are in frequent correspondence with them, of course?

Mr. Yapp: Yes.

2460. *Sir Philip Gibbs*: Would you have any objection to my seeing some of the files of your correspondence?

Mr. Yapp: I do not think so. I do not know what files you particularly refer to.

2461. *Sir Philip Gibbs*: Well, I should like to ask whether it is possible to see certain files, subject to the consent of the Chairman in asking this question.

Chairman: If you can select a reasonable period, or an individual, or something as illustrative of the correspondence—

Mr. Yapp: You will not find separate files of correspondence with agents. We have not got all the correspondence together with a particular man.

2462. *Sir Philip Gibbs*: Why have you not?

Mr. Yapp: Because a letter may refer to a particular subject, and it will be in a special file, in a subject file. It will not be in an agent's file.

2463. *Sir Philip Gibbs*: But surely you keep your correspondence with your agents separate from your other business?

Mr. Yapp: Separate from our other business?

2464. *Sir Philip Gibbs*: You are responsible for the agents' department, are you not?

Mr. Yapp: Yes.

2465. *Sir Philip Gibbs*: And therefore you would have files under each man's name?

Mr. Yapp: Oh, no; I am sorry, we have not. We may have a certain amount of general correspondence.

2466. *Sir Philip Gibbs*: No, but I mean particular correspondence with a particular agent.

2467. *Chairman*: How do you deal with the correspondence with your agents?

Mr. Yapp: If we have an inquiry from a country abroad, and we have correspondence with our agency, the correspondence will be in the file relating to that inquiry, and all the correspondence relating to that inquiry will be in that file.

2468. *Chairman*: All the correspondence relating to that inquiry will be in a file by itself?

Mr. Yapp: Yes.

2469. *Dame Rachel Crowdy*: Presumably, being a very first class business organisation, you would have a very comprehensive cross index and therefore it would not be very difficult for somebody on the spot—

Mr. Yapp: No, I am afraid we have not got that.

2470. *Chairman*: At any rate, you could produce a file which would show all the correspondence about a particular subject?

Mr. Yapp: Yes.

2471. *Chairman*: You could take some inquiry about some particular armament business, and produce a file showing the whole correspondence with regard to a particular piece of armament business. Would that satisfy you, Sir Philip?

Sir Philip Gibbs: I must confess that I wanted rather more than that. I think perhaps I ought to submit to you, Sir, the files which I should like to see, unless you have any objection to my asking for them.

2472. *Chairman*: I personally have no objection whatever. I see on this slip which you have handed to me there is, first of all, correspondence with regard to China.

Sir Philip Gibbs: Yes. The dates are given here—from September, 1931, to April, 1933; then Bolivia and Paraguay.

2473. *Chairman*: Let us deal with the first one first of all. Would that require a pantechicon van, or could you bring it here in a motor car?

Mr. Yapp: It would not require a pantechicon van, but it would require some time to extract that correspondence from the various files which it is in.

2474. *Dame Rachel Crowdy*: Would it not possibly be much easier for Sir Philip to go and read it on the spot?

Chairman: Quite so.

Mr. Yapp: That would make no difference to us at all.

Dame Rachel Crowdy: But the pantechicon van would be avoided.

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Mr. Yapp: Could we have the information on it, Sir? I take it that it is Japan and China, from 1931 to 1933?

2475. *Chairman:* Yes. Then there is Bolivia and Paraguay, from January, 1932, to December, 1934, and from 1928 to 1932. I think this is rather an excessive demand, straight off. Could not you satisfy yourself, Sir Philip, by examining one section, and then if you have any reason to want more, ask for more?

Sir Philip Gibbs: Yes, Sir.

Mr. Yapp: Very well. We will deal with Japan and China.

2476. *Chairman:* Would you prefer Japan and China, or Colombia and Peru?

Sir Philip Gibbs: Japan and China, I think.

2477. *Dame Rachel Crowley:* Might I suggest that to that is added Manchukuo, because it comes into the same situation?

Mr. Yapp: Certainly.

2478. *Chairman:* Would you be satisfied to go to the office, Sir Philip? It would save a lot of trouble.

Sir Philip Gibbs: Yes, and I should like to be accompanied by an able assistant. I suggest Dame Rachel.

2479. *Chairman:* Yes. Then two of the Commissioners will go to the office when you have had an opportunity of looking up this correspondence. If you will let the Secretary know when it is ready, two of the Commissioners will attend to go through it.

Mr. Yapp: Very well, Sir.

2480. *Sir Philip Gibbs:* Sir Charles, it seems to me, if I may say so without offence, that some of your agents in past history have not been perhaps altogether free from criticism as to their methods. Yesterday I think Sir Herbert or Mr. Yapp—I have forgotten who—said that there had been no direct charge of bribery against any agent of Vickers—but of course there have been one or two charges. There has been a charge of bribery, the Japanese one. A proven case of bribery is reported in the *Japanese Weekly Chronicle* of the 23rd July, 1914, concerning a Japanese officer, Admiral Fujii, in which he was found guilty of taking bribes from a dockyard official; and then I alluded yesterday to a very celebrated gentleman who has not been—

Chairman: We had that question yesterday, I think.

Sir Charles Craven: Yes.

2481. *Sir Philip Gibbs:* Do you know anything about that?

Sir Charles Craven: It was before I joined the company, Sir. I am not saying that there was nothing wrong, but I have found nothing to prove that there was anything wrong. That is all I can say about Admiral Fujii.

2482. *Sir Philip Gibbs:* You have gone into the question?

Sir Charles Craven: Yes. The only reference we can find to it is in *The Times*. I am not saying there was not something improper done, but I did say, whether it was yesterday or to-day I forget, that if the general manager at Barrow—he was a director of the company—had done all that he is alleged to have done, I cannot help thinking he would not have remained in his job.

2483. *Sir Philip Gibbs:* There is a rather more recent case of one of your agents who got into trouble, a Mr. Arthur V. Lander, a Vickers agent, who was expelled from Turkey on 3rd August, 1933, without warning, on charges of espionage, corruption of state employees, and *lèse majesté*. Have you inquired into his case at all?

Sir Charles Craven: I think he was one of Mr. Yapp's staff.

Mr. Yapp: We did at the time. The first intimation we had was that Mr. Lander had been expelled from Turkey, and we got into touch with the Foreign Office, and we were informed by the

British Ambassador in Turkey, through the Foreign Office, of the allegations that had been made against Mr. Lander by the Turkish Government, and generally they were that Mr. Lander had been giving small sums of money to civil servants to do translating and typing work for him. They did accuse him also of being too inquisitive as regards their munitions works, the placing of arms orders, and that sort of thing. But we were specifically informed by the Turkish Government that this did not reflect on us at all, and our relations with the Turkish Government continued as before.

2484. *Sir Philip Gibbs:* May I ask you whether, with regard to your agents, you have any item under expenses in addition to their commission?

Mr. Yapp: Only, as I mentioned to Dame Rachel Crowley yesterday, that in certain cases we do make a contribution to their office expenses. That, I think, in no case is more than £500 a year, and sometimes even that is set off against commissions that may become due to them. But there are no other items of expenses.

2485. *Sir Philip Gibbs:* May I ask what method of payment was arranged with regard to Sir Basil Zaharoff—that is to say, what payment he was made, or commissions, on the orders he put into the firm of Vickers?

Mr. Yapp: As far as we are able to trace, Sir Basil Zaharoff did originally receive a commission on orders which he obtained for us. Sir Basil Zaharoff, from the records I have been able to trace, started with the Nordenfelt company in 1877. The Nordenfelt company subsequently amalgamated with the Maxim company, and the company became the Maxim Nordenfelt company. It was then taken over by Vickers, and became Vickers Sons & Maxim.

2486. *Sir Philip Gibbs:* And Sir Basil remained with you for a very considerable period, did he not?

Mr. Yapp: For a very considerable period.

2487. *Sir Philip Gibbs:* And, as a matter of fact, he is still one of your agents.

Sir Charles Craven: For Spain only.

2488. *Sir Philip Gibbs:* But you are associated with that company. You benefit by his activities?

Sir Charles Craven: Certainly as regards Spain.

2489. *Sir Philip Gibbs:* With regard to Sir Basil, who is rather an important figure in the world, and will go down to history, there is no doubt, you will agree, that his value to you was very largely his influence in the political circles of Europe and the world. Do you agree with that, Sir Charles?

Sir Charles Craven: May I submit, Sir, that these are questions that should have been addressed to the chairman of the parent company, who appeared here yesterday, who received many inquiries about Sir Basil, and I think it would be almost improper for me to try and answer them.

2490. *Chairman:* I think we have got all that is necessary. He is your agent only for the Spanish business?

Sir Charles Craven: Yes. I was quite a junior person when Sir Basil was the great salesman.

2491. *Sir Philip Gibbs:* I accept that immediately, Sir Charles. I think that is very fair. I have to ask one general question, and that is this, that in this business of the selling of munitions in foreign countries it is no doubt rather valuable to a firm like Vickers to have people in very high positions who are able to mix with the politicians and with the military and naval staffs of these countries. Do you think that that constitutes a valuable agency for your firm—those qualities?

Mr. Yapp: I do not think we have any such person to-day.

2492. *Sir Philip Gibbs:* You have nobody to succeed to Sir Basil Zaharoff?

Mr. Yapp: Oh, nobody in the same position at all; no.

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Sir Charles Craven: Do you mean from a social point of view?

2493. *Sir Philip Gibbs:* No, I mean from a political influence point of view; that is to say, friends of prime ministers and politicians, and those who rule the destinies of mankind.

Sir Charles Craven: There is no representative of the company who represents us in all countries, no. It is dealt with by Mr. Yapp's agents.

2494. *Sir Philip Gibbs:* I am not going to ask you any more questions, because Dame Rachel, I am sure, wants to ask you several; but may I suggest that throughout the correspondence that was published, inadvertently no doubt from your point of view, before the Committee of Inquiry in America, you show a certain levity of mind with regard to the business that you are doing; that is to say, that all through those letters the general tone is that you think the more munitions in the world the merrier for the world, and that it is a jolly good thing, really, for all countries to buy munitions of war, and that you personally really regard with some contempt all methods to restrict armaments and all peaceful associations which have the idea of the limitation of arms? Is that a fair expression of the rather jocular tone of your letters?

Sir Charles Craven: Most unfair.

Sir Philip Gibbs: You say "most unfair."

Those are all the questions I want to ask you, Sir Charles.

2495. *Dame Rachel Crowdy:* My questions are going to be very short. Will you turn to page 333 of Part I of the American Inquiry? In Exhibit No. 22, which is a letter from you to Henry R. Carse, Esquire, at the top of page 333, you say: *All that you and I gain by the transaction will be that we shall know that if the ship is built Vickers will get the order. If, on the other hand, Geneva or some other fancy convention decide that large submarines have to be abolished, no definite contract will be placed, and the Admiralty can retire gracefully without having to pay us anything.* Then in Exhibit No. 23, again writing to the same man, Mr. Carse, of the Electric Boat Company, you say: *In other words, they—that is, the Admiralty—will have the right to withdraw their promised order for the second ship if Geneva or any other troublesome organisation upsets the large submarine.* Well, I find myself in rather the same state of mind as Sir Philip. The implication in my mind is quite definitely that certainly Sir Charles Craven and, therefore, probably Vickers, is, I will not say working against, but is definitely against any organisation, international or otherwise, which would give a feeling of security in the world. Would you like to make any comment on those two letters of yours, because they are very definite statements on your part, or implications on your part, that you do not want any peaceful settlement, and that you think it is rather better to have a good export of arms by your firm rather than peaceful settlement?

Sir Charles Craven: I do not think anybody could reasonably, by intercepting private letters, anybody's private letters, have the right to assume that. You are really asking my personal opinion of the League of Nations?

2496. *Dame Rachel Crowdy:* No, of any international organisation which will create peace *vis-à-vis* the arms firms who will create war.

Sir Charles Craven: Well, I am not admitting that armament firms do create war, and I think very few reasonably minded people do think that they create war.

2497. *Dame Rachel Crowdy:* But you have no great feeling in favour of any attempt at peace by diplomacy?

Sir Charles Craven: I think that the League of Nations was the most wonderful ideal that has happened in our time, but I submit that it is not for me, as a private individual, to say what I think about the machinery that is operating the League of Nations. I do not think I have any right to. But

I did in my covering statement refer to my free and easy language.

2498. *Dame Rachel Crowdy:* I think, if I may say so, that your free and easy language is the most helpful thing possible to this Commission, because if one writes in diplomatic language one does not always say what one thinks, whereas if one writes as one friend to another one says what one thinks, hoping for the best.

Sir Charles Craven: And hoping that the other friend will put the letter in the fire.

2499. *Dame Rachel Crowdy:* You have got nothing else you wish to say on those two Exhibits, Sir Charles?

Sir Charles Craven: No, I do not think so.

2500. *Dame Rachel Crowdy:* Then would you mind turning to page 407, Exhibit No. 127. This is a letter to you, and not from you and incidentally it does not seem to be signed. There is some rather mysterious figure in the left-hand corner.

Sir Charles Craven: That is Spear's initials.

2501. *Dame Rachel Crowdy:* I want to know if you are really in agreement with what Mr. Spear implies here. He says: *I hear that friend Livingston passed through New York recently on his way back from Peru. I, however, have not seen him. It is too bad that the pernicious activities of our State Department—that is the American State Department—have put the brake on armament orders from Peru by forcing the resumption of formal diplomatic relations with Chile.* Do you agree with Mr. Spear that it is a great pity if brakes are put on your armament orders while formal diplomatic relations are resumed?

Sir Charles Craven: I really do not think that I am entitled to answer a question of that kind. Here is a letter written to me by a gentleman who has not even signed it, and I did not reply to it. That is my answer. I did not express any opinion to him about what I thought of his letter.

2502. *Dame Rachel Crowdy:* I rather hoped that you might feel you could express an opinion now, because it would be extremely interesting to know if you agreed with that or not.

Chairman: But this is not your letter, is it, Sir Charles?

Sir Charles Craven: It is a letter written by Mr. Spear, and it is merely initialled, and not signed.

2503. *Chairman:* I do not think, Dame Rachel, that you can ask what the writer meant, or thought.

Sir Charles Craven: Dame Rachel asked me what impression I had when I received that letter. The only reply I can give you—this was in August, 1928—is that I did not answer it.

2504. *Dame Rachel Crowdy:* That might be due to a dozen things.

Sir Charles Craven: It might be; yes.

2505. *Dame Rachel Crowdy:* I think that is all I want to ask you at the moment on the American evidence, though I have got some other questions which I should like to ask you later, if I may, on general subjects.

Chairman: Do you want to exhaust all the questions that you wish to ask Sir Charles now? We are not limiting it to any particular branch, I think.

2506. *Dame Rachel Crowdy:* Then shall I go on? I have only got very few questions to ask. I think, Sir Charles, that you have given us some of the information which I want in your statements that we had yesterday; but you will not mind my repeating a question, and if it is out of order then of course I shall accept the ruling of the Chairman immediately. Can you give us any idea of how many employees of your companies were engaged in the manufacture of arms between 1st January, 1932, and 1st November, 1935? You cannot give it immediately, obviously. I shall be quite pleased if you will take January, 1932, to November, 1935.

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Sir Charles Craven: You are really asking me if our Government have placed more orders. I cannot, of course, give you details of it.

2507. *Dame Rachel Crowdy:* Would you be able to look up the figures, with not too much difficulty, to find out how many people you were employing?

Sir Charles Craven: Yes, I can give you the figures, but I am not sure whether it ought to be in public, if you want to go up to the present time.

2508. *Dame Rachel Crowdy:* Yes, it is practically to the present time—to November, 1935.

Sir Charles Craven: On that, I would submit to the Chairman that he should give me a ruling as to whether I should answer it.

2509. *Chairman:* I do not quite follow the object of fixing these dates.

Dame Rachel Crowdy: I rather want to find out what proportion of these men were engaged in manufacturing arms for export for non-British concerns at those dates.

Sir Charles Craven: We could give you that, without divulging what our own country has ordered.

2510. *Dame Rachel Crowdy:* It is no good giving the foreign only. What I want is quite roughly the number of people employed, but perhaps you would feel you could hand it to the Commission, if you thought it would be better not to give it to the public. That would suit me just as well.

Sir Charles Craven: The foreign figures I do not mind giving in public a bit; but I suggest it is not quite proper for me at this moment to give publicly the Government orders—not at the moment.

Dame Rachel Crowdy: But would you give us—

Sir Charles Craven: I would very much rather that you asked the Government departments concerned what orders were placed with me. It would be very much simpler.

2511. *Dame Rachel Crowdy:* It is the number of men employed that I really want.

Sir Charles Craven: Of course there are certain common departments, a foundry, for instance, where it is very difficult for me to allot the men over these periods; but I can do it if you will accept it as an average. I shall have to turn my money back into men, and if you will accept that, it will be within one or two per cent.

2512. *Dame Rachel Crowdy:* Then if you will do that, perhaps you will add what proportion are highly specialised workers and not easily to be transferred into the production of peaceful products.

Sir Charles Craven: I can easily give you what we call the proportion of the skilled, semi-skilled men, and the unskilled men.

2513. *Dame Rachel Crowdy:* Many of those, or most of those, could be transferred to other employment if necessary?

Sir Charles Craven: Most of them can.

2514. *Dame Rachel Crowdy:* I understand that the bulk of your men can be so transferred.

Sir Charles Craven: Yes—not all of them. If a man has been spending his life, the whole of his life, in designing a fuse, he is not much use for anything else.

2515. *Dame Rachel Crowdy:* But the bulk of them can be transferred?

Sir Charles Craven: Yes; provided, always, that I can get the orders.

2516. *Dame Rachel Crowdy:* Shall I give you those questions in writing?

Sir Charles Craven: It would help very much if you would.*

2517. *Dame Rachel Crowdy:* Then there is one other thing that I should like to know about. Do you make your peaceful products and your war products in the same section of your factories and shops—actually in the same shops—or are they all mixed up together? Of course, obviously some raw

materials are by themselves, but have you any strict division between your peace products production and your war production?

Sir Charles Craven: We have the strict division in the Metropolitan Carriage Company which is concerned with railway rolling stock, and is a commercial firm. Then you have the rubber company, a little company at Glasgow, which is 99 per cent. commercial, and then we have a little company called Boby's, but all of those companies are given as purely commercial. In our own shops—I am thinking of one of our biggest works—the answer is that there is no division. We do have special designers. For instance, we have a specialist on cement plant, who designs all our cement plant, and he has a team of his own working, and it may be that probably three or four of his team of thirty—I cannot say how many he has at the moment, because it varies—may be working on commercial businesses. They are really specialists, but the rest of them would go to another drawing office, if necessary; they can switch over. But in the shops themselves, excepting for the very special armaments, they are all interchangeable; they are not separated in these works which I am thinking of, where so many of these people are employed.

2518. *Dame Rachel Crowdy:* I was not really meaning: can your men be switched from peace production works to war production work; I was meaning, do you actually make your peace products output in a different section of your factories?

Sir Charles Craven: I am sorry. I did not quite understand. No, they are in the same section.

2519. *Dame Rachel Crowdy:* For example, in the event of a state monopoly, I was wondering about the division of your peace work and your war production.

Sir Charles Craven: They are all in the same shop.

2520. *Dame Rachel Crowdy:* They are all mixed up together?

Sir Charles Craven: Yes. I mean to say that a cement plant, for example, requires the best type of boiler work, and that is obviously done in the same shop where we do our Admiralty boilers.

2521. *Sir Kenneth Lee:* Might I return to another point? Supposing your research department makes a new invention, how is it exploited? Do you take out a patent?

Sir Charles Craven: A patent is taken out in the joint names of the man and the firm and, as I tried to explain yesterday, if it is something which has nothing whatever to do with our business at all, we will go on with the preliminary stage, taking out the patent and all that, and then probably if it did not suit us we should say to the man: "You can do what you like with it," and we should probably help him to introduce it to the public. In the one case, where it is not akin to our business, our general rule is that we should reward the man; in the other case we may take it over and may reward them.

2522. *Sir Kenneth Lee:* That means disclosure to the world?

Sir Charles Craven: Immediately we apply for a patent of any sort, the Government can step in and make it secret.

2523. *Sir Kenneth Lee:* So it is never disclosed?

Sir Charles Craven: By us to the Admiralty, do you mean?

2524. *Sir Kenneth Lee:* No; to the outside world.

Sir Charles Craven: Not without the defence departments' approval.

2525. *Sir Kenneth Lee:* Are there many products of that sort?

Sir Charles Craven: Do you mean where there are secret patents at present?

2526. *Sir Kenneth Lee:* Yes.

Sir Charles Craven: There are not many secret patents in our company, just now; but there are

* See Appendix 20, p. 432.

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a few. I can let you know the number if you want it; but there are lots of secret designs, of course.

2527. *Sir Kenneth Lee*: But the products you are advertising in those German papers, were they your latest products?

Sir Charles Craven: Well, they were, I suppose, but we have a different design. The War Office have their own type of tank to fulfil another purpose, and we do not sell that tank without their permission.

2528. *Sir Kenneth Lee*: What I am trying to get at is this. Would it not be easier, if the Government were making all the munitions, to keep things secret?

Sir Charles Craven: I do not think it would.

We do not do, and we dare not do, anything of the kind which you suggest may be going on.

2529. *Sir Kenneth Lee*: But how long in fact does it take before a new weapon becomes known to the world, when it is produced by you?

Sir Charles Craven: I always reckon that by the time anything gets to sea in a ship, the idea is out very very quickly then. Foreigners call on board the ship, and they get the idea of it, and within a couple of years after that they have probably got that thing, I should think.

2530. *Sir Kenneth Lee*: And your contention is that it would probably come out just as quickly if it were government-produced as if it were privately produced?

Sir Charles Craven: Yes. I am perfectly satisfied that anything confidential which we do for the services is just as safeguarded in our works as it is in a government works.

2531. *Sir Kenneth Lee*: Do you have agreements with your people so that they cannot leave your employ?

Sir Charles Craven: For the specialists—certain specialists—yes. We cannot with the work-people, of course.

2532. *Mr. Spender*: I do not want to worry this question; but there do seem to be some aspects of it which have hardly been touched upon. Mr. Arnold Forster said in his evidence something about your company supplying orders to Peru, and passing on orders for Chilean warships to Brazil. It does seem to us that these local agreements may have that effect, that if one of you can persuade one government to place an order, the other government will follow, and will place another order accordingly.

Sir Charles Craven: Yes; but the answer to a submarine is not a submarine. The answer to a submarine is something to do away with a submarine.

2533. *Mr. Spender*: But still, it might be so?

Sir Charles Craven: But it does not arise in the case of guns, I think.

2534. *Mr. Spender*: It is commonly alleged, to take an imaginary example, that the selling of torpedo boats to Greece would lead to the sale of some other craft, destroyers it might be, to the Turkish Government. I have taken only quite an imaginary case. I suppose that has gone on all through?

Sir Charles Craven: I do not know of any case where a Vickers man has gone from one country and said: "I have sold so many guns against you, and you had better buy so many guns".

2535. *Mr. Spender*: I do not allege that.

Sir Charles Craven: But it is alleged by most of the witnesses.

2536. *Mr. Spender*: Most of our witnesses?

Sir Charles Craven: A lot of them have referred to this thing.

2537. *Mr. Spender*: Then there is another allegation, which is rather a general one, that this trade differs from all others, in that competition does not hurt the competitors. The more lively it is, the more likely each competitor is to gain by it. Do not think I am suggesting that you do anything that you should not do.

Sir Charles Craven: It comes back to this, that if a government has made up its mind to have

armaments—if it has made up its mind to have them—it is going to get them from someone.

2538. *Mr. Spender*: You do not think that the general readiness to supply these weapons, and the profits to be made out of them, is a stimulant—I do not say a primary one.

Sir Charles Craven: It is not a very profitable business, if you take it all in.

2539. *Mr. Spender*: You told me yesterday that you would provide figures, if you remember, showing the money gained and the moneys distributed in money values, in dividends and bonuses, which would enable us to compare it with your list.

Sir Charles Craven: Yes. The secretary, I think, has got what he thinks you want.* This was really the counterblast from writing down.

2540. *Mr. Spender*: It was so as to give us some idea of the position. I have not time to go into it now, but what is your general view?

Mr. Reid Young: The actual increases in capital which took place were from the original capital of £155,000 in 1867 to £20,679,290 at the 31st December, 1924. The latter figure was reduced by £8,210,322 in January, 1926, by writing down the ordinary shares from £1 each to 6s. 8d. each, leaving the present issued share capital at £12,468,968. Of the total issued capital £9,400,536 was issued for consideration other than cash (for purchase of assets of and shares in Companies acquired), £8,883,754 represented issues for cash, and £2,395,000 represented bonus issues. Of these bonus issues, shares to the nominal value of £254,558 were issued out of profits, shares to the nominal value of £1,100,000 were issued out of premium on shares of previous issues, and shares to the nominal value of £1,042,442 were issued in respect of revaluation of assets. The details of these issues are shown in the statement* which we submit.

2541. *Mr. Spender*: You have not got any figures showing what has been the average profit?

Mr. Reid Young: Yes; we have supplied that in our statement.

2542. *Mr. Spender*: I just want to ask a question on a point which rather puzzles me. It is with regard to your agreements with foreign firms. I do not think we have got copies of those.

Sir Charles Craven: You have a precis of them.

2543. *Mr. Spender*: We have rough particulars of them. What is the precise result of them? Is it that you mean you have interchange of orders? If you do not control them, and do not mean to control them, why do you have them?

Mr. Yapp: I think you will usually find they are agreements under which we use patents of theirs, or they use patents of ours.

2544. *Mr. Spender*: It is the interchange of patents?

Mr. Reid Young: There is no general agreement for interchange of patents to specific foreign firms.

2545. *Mr. Spender*: But each agreement contains some specific patents?

Sir Charles Craven: We have offered to bring any of those agreements here, Sir.

2546. *Professor Gutteridge*: I should like to ask Mr. Reid Young this question, arising out of his answer. Did these capital bonuses represent a capitalisation of profits?

Mr. Reid Young: Only £254,000.

2547. *Professor Gutteridge*: When was that?

Mr. Reid Young: In 1878.

2548. *Professor Gutteridge*: It was a long time ago?

Mr. Reid Young: Yes.

2549. *Dame Rachel Crowley*: May I ask one question on a point which Mr. Spender brought out? I am referring to Exhibit No. 68, which is on page 118 of Part I. Mr. Spender was asking about a statement by Mr. Spear before the Committee, on the

* See Qs. 1930-1942 and Appendix 16, p. 426.

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supply of boats to Peru and Chile. You will remember he mentioned the case a moment ago. Mr. Spear says in evidence: *We were at that time still building two boats for Peru, and he goes on to say: . . . we did not think it would look very well for us to be dealing with the Chileans at the same time that we were dealing with the Peruvians.* Then Senator Clark says: *So that you preferred to tell the Chileans that the best deal they could make would be with your associates Vickers, out of whom you could get a commission?* In that case, the Electric Boat Company was getting a commission from you for the boats you delivered for Chile; and would you get a commission from them for the boats they got from Peru?

Sir Charles Craven: No, we do not get any commission on any foreign orders.

2550. *Dame Rachel Crowdy:* They would merely get commission from you?

Sir Charles Craven: I am not sure of that. I should like to make sure. Chile is a precluded country, and Peru is a precluded country. I should have to make that a special arrangement.

2551. *Dame Rachel Crowdy:* It is within the defined geographical region?

Sir Charles Craven: Yes. We have no rights there.

2552. *Sir Thomas Allen:* I should like to clear up one or two points with regard to the evidence yesterday. I have nothing to say on the evidence yesterday, but I do remember that when Mr. Fenner Brockway came before us he told us that there are close relations and connections between the raw material industries and other industries, and in particular with banks, and then he went on to say that loans to non-producing nations are sometimes raised by the firms which supply armaments. I should like you, Sir Charles, if you would, to tell us this. Have you any experience in that direction and have the Vickers-Armstrong company, or any of the associated companies, arranged loans with any foreign governments at any time, and, if so, what is the situation with regard to them to-day?

Sir Charles Craven: The only loan that I know of was issued in connection with the Chinese contract for aeroplanes, but they were commercial aeroplanes, so I do not think they come into the scope of this Commission.

2553. *Dame Rachel Crowdy:* Was that secured on the customs?

Sir Charles Craven: Yes.

2554. *Sir Thomas Allen:* And that was a loan to the government?

Sir Charles Craven: No, it was not a loan, it was an issue of Chinese bonds in London.

2555. *Professor Gutteridge:* You got the bonds and put them on the London market; is that it?

Sir Charles Craven: Yes.

2556. *Sir Thomas Allen:* Then I should like to develop the question raised by Sir Kenneth Lee just now with regard to inventions. We were told that an inventor coming to a private manufacturer in peace time would not be more likely to get money made available for development of his ideas than if he went to the government—that a man with an idea has a better chance of a fair deal if he negotiates with a government department. You have had experience on both sides. Could you enlighten us as to what is the method within the government with regard to patents?

Sir Charles Craven: Yes. I think if it is something good, or something original, they would take it up; but I think he would get away with it much more quickly in a private firm. There is much more machinery to go through in the government department. I never shall invent anything, but if I did, I should go to a private firm.

2557. *Sir Thomas Allen:* You would take it to a private firm rather than to a government department?

Sir Charles Craven: Yes.

2558. *Sir Thomas Allen:* Then dealing with profits, I think it was Mr. Hunter who came before us, who quoted something which Sir Herbert Lawrence said in 1923, that unless armament orders are available it will be difficult to earn satisfactory profits. He put this forward as evidence that Messrs. Vickers' profits are closely dependent on contracts for war material. Would you enlighten us as to that?

Sir Charles Craven: That is a perfectly true statement. I think Sir Herbert Lawrence said so yesterday. We are an armament firm, and the figures which we have submitted will show that.

2559. *Sir Thomas Allen:* We were also told that one of the reasons for the establishment, say, of an armaments board would be because the three services are competitive in the market sometimes for similar products; that you would get, say, the three services coming to you for a similar armament or instrument of war, and therefore there was very considerable overlapping. Have you any experience in that direction at all?

Sir Charles Craven: There is no overlapping at all, as far as we are concerned to-day. But I submit this is rather delicate ground; and I think I might suggest that this question should be addressed to the government witnesses. However, I should say there is no overlapping to-day—in peace time.

2560. *Dame Rachel Crowdy:* There is only one other question, which I have been requested to ask you. Will Sir Charles Craven state whether Messrs. Vickers received from the German firm of Krupp any payment, or any benefit, either in shares or otherwise, for the use of Vickers' inventions by Krupp in supplying the German army with armaments and munitions of war?

Mr. Yapp: You are asking if we received anything from Krupp.

2561. *Dame Rachel Crowdy:* Yes.

Mr. Yapp: The answer is "No".

Sir Charles Craven: You said from Germany, I think?

2562. *Dame Rachel Crowdy:* Yes.

Mr. Yapp: There was a firm who had received a licence to manufacture the Maxim gun and we did receive a small amount of money for guns which they manufactured during the War, through the German clearing house, but nothing from Krupp.

2563. *Professor Gutteridge:* I think that so far as the evidence goes, it was a question between the Electric Boat Company and the Germans?

Mr. Yapp: Yes.

2564. *Professor Gutteridge:* You had some patents which were used by the Germans during the War, did you not?

Mr. Yapp: Yes. We have never got anything out of them yet.

2565. *Chairman:* I am anxious that everybody should have all the questions asked which they wished to be asked. We have received a communication indicating a number of questions that one of the Parties of Great Britain wish to have asked. A number of them are quite irrelevant; a number of them indicate the mentality of the questioner; and some of them I would like to put to you, because it is desirable that these questions should be answered. There is one here which inquires whether it is a fact that The Bank of England (via Sir Otto Niemeyer, Vickers-Armstrongs Ltd. and the Ottoman Bank) has or till recently did have close financial and directorial connections with Vickers Ltd. In May, 1935, a big Bank of England loan to foster German re-armament was made known. Was Vickers Ltd. aware of this loan and did it benefit therefrom?

Sir Charles Craven: I have never heard of it; but may I submit that Sir Otto Niemeyer was not

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nominated by the Bank of England but by Armstrong Whitworths.

2566. *Chairman*: Then they say that Sir Otto Niemeyer went as Bank of England adviser to South America in 1930 and Australia in 1931. "Did Vickers-Armstrongs Ltd., of which he was a director, receive any orders as a result?"

Sir Charles Craven: No, Sir.

2567. *Chairman*: "Were the tanks mentioned in the *Army, Navy and Air Force Gazette* of the 8th November, 1934, and quoted in Mr. Pollitt's evidence, manufactured by Vickers-Armstrongs Ltd.?"

Sir Charles Craven: Yes, Vickers-Armstrongs.

2568. *Chairman*: They were?

Sir Charles Craven: Well, they were advertisements. Is it the paper that was referred to yesterday?

2569. *Professor Gutteridge*: There was an allegation made by one of the witnesses that Vickers had made tanks which they had sent out to the Chinese, to one of these Chinese general fellows, and that he had used them to hunt out the communists.

Sir Charles Craven: It is quite possible, Sir. We do not know what they use them for. But we did sell a few tanks to China.

2570. *Chairman*: The next question is: "How great a proportion of Vickers' arms production goes abroad, and to what countries?" We have got that information.

Sir Charles Craven: Yes.

2571. *Chairman*: The next question is: "On page 3 of Vickers' memorandum the new anti-aircraft gun is mentioned. Since Vickers also control aeroplane producing firms, must not such a gun be very useful for Vickers Ltd.?" Well, I think that answers itself. The next question is: "Has Vickers-Armstrongs Ltd. had any arms exports stopped by the Foreign Office? If not, does not that explain the statement in the memorandum that it wholeheartedly supports the present licensing system?" Have you had any stopped?

Sir Charles Craven: We had one licence suspended. A licence was issued to us for the export of munitions to a certain country, and it was suspended for a little while, and it was then renewed.

2572. *Chairman*: The next question is: "Is it a fact that Mr. Bryce, nephew of the late Lord Bryce, went to Belgrade shortly after the War in the dual capacity of *The Times* correspondent and Vickers'

agent? That after Mr. Bryce failed to secure a contract for a new bridge across the Danube, he lost both the Vickers' agency and his position with *The Times*?"

Sir Charles Craven: Yes.

2573. *Professor Gutteridge*: He was actually a correspondent of *The Times*?

Mr. Yapp: Yes. Mr. Bryce was a gentleman who represented Armstrong-Whitworths before the fusion of Vickers and Armstrongs, and during certain years he was acting as correspondent for *The Times*. That we have found out since. I think his association with *The Times* ceased in 1925. The fusion of Vickers and Armstrongs was at the end of 1927, and Mr. Bryce remained with the company which retained the connection of Vickers-Armstrongs in that country.

2574. *Chairman*: I have asked the questions, and they have been answered; and I hope I have satisfied the persons who asked that they should be asked. I think those are all the questions that I want to address to you; but before we adjourn I want to ascertain whether anybody wants to ask any questions on the other part of the information given to us; because we shall have to have another meeting about that, unless you can do it to-night.

Professor Gutteridge: There were one or two questions which I wanted to ask of Sir Charles. It seems rather a pity to make him come all the way here to-morrow.

2575. *Chairman*: Are they on matters which are included in the second part?

Professor Gutteridge: Yes. I am pretty sure that Sir Charles would not wish to answer them in public.

2576. *Chairman*: You mean on expansion?

Professor Gutteridge: Yes.

Sir Charles Craven: Yes, I do not think I could answer them in public.

Professor Gutteridge: That is why I did not ask Sir Charles those questions.

2577. *Chairman*: Perhaps we could hear that evidence in private, and then we need not ask Sir Charles to come here again.

Professor Gutteridge: My questions will not take more than three or four minutes.

Chairman: Very well; we will clear the room and hear that evidence now.

(Further evidence was heard in camera.)

(Adjourned.)

[Sir Charles Craven subsequently submitted further evidence which he desired to be added to the records of the Royal Commission. This is reproduced in Appendices 21 and 22.]

INDEX TO APPENDICES

[Appendices 1-9 relate to Statement No. 3 and are numbered to correspond with the Headings in the Questionnaire addressed to Messrs. Vickers Limited on the 23rd April, 1935 (see p. 345). Appendix 1 relates to Questions 1 and 2; there is no separate Appendix relating to Question 2.]

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* Not printed.

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APPENDIX 1.
STATEMENT SHOWING THE PROPORTION OF THE TOTAL TURNOVER IN EACH OF THE FIVE YEARS 1930-1934 ATTRIBUTABLE TO THE PRODUCTION OF ARMS AND MUNITIONS OF WAR
DIVIDED BETWEEN BRITISH EMPIRE AND FOREIGN

Name of Company	Year 1930.			Year 1931.			Year 1932.			Year 1933.			Year 1934.						
	Total Turnover £	Per cent. of Arms- munitions British Empire.	Per cent. of Arms- munitions Foreign.	Total Turnover £	Per cent. of Arms- munitions British Empire.	Per cent. of Arms- munitions Foreign.	Total Turnover £	Per cent. of Arms- munitions British Empire.	Per cent. of Arms- munitions Foreign.	Total Turnover £	Per cent. of Arms- munitions British Empire.	Per cent. of Arms- munitions Foreign.	Total Turnover £	Per cent. of Arms- munitions British Empire.	Per cent. of Arms- munitions Foreign.				
<i>Companies wholly or partly engaged in the Production and/or Sale of Munitions of War</i>																			
British Separations, Limited	29,306	100.00	—	26,557	11.45	100.00	—	37,214	0.69	94.84	5.16	14,762	6.08	100.00	—	18,130	51.47	96.71	3.29
Cooke, Troughton & Simms, Limited	197,097	100.00	—	172,690	38.78	100.00	—	152,704	34.73	100.00	—	103,073	13.92	100.00	—	117,071	13.73	100.00	—
English Social Corporation, Limited	2,455,165	12.67	98.12	1,878,701	25.71	99.91	0.09	1,373,916	15.98	98.99	1.01	1,837,276	31.59	99.65	0.35	2,557,068	23.44	99.50	0.14
Industrial Seeds, Limited	492,509	2.31	100.00	346,595	3.69	100.00	—	332,916	3.43	100.00	—	423,744	5.77	100.00	—	536,071	2.97	100.00	—
Shalton, The Aviation Works (Vicars), Limited	341,756	98.20	99.61	427,382	99.23	100.00	—	222,552	92.36	100.00	—	270,557	98.22	100.00	—	331,176	99.61	91.82	38.18
Thames Ammunition Works, Limited, The	37,091	42.29	66.53	32,448	36.63	49.27	50.73	35,580	42.79	52.96	47.04	33,780	35.07	29.35	79.15	65,307	62.01	82.72	17.28
Vickers-Armstrongs, Limited, The	7,626,916	76.19	65.35	7,322,431	54.27	59.81	40.19	6,209,016	68.39	60.27	39.73	5,719,903	67.04	61.60	33.40	6,055,306	54.04	54.37	45.63
Vickers (Aviation), Limited	644,353	98.50	98.49	568,665	96.36	99.23	0.72	527,559	88.09	98.14	1.86	781,146	98.09	99.37	0.63	373,583	99.08	99.25	0.75
Whitbread Torpedo Co., Limited, The	298,973	100.00	0.16	238,684	100.00	1.04	98.96	129,420	100.00	2.49	97.51	157,571	100.00	2.96	97.04	251,032	100.00	73.88	21.12
<i>Companies wholly engaged in the Manufacture of Munitions of War</i>																			
Bobby, Robert, Limited	123,219	—	—	119,472	—	—	—	65,594	—	—	—	90,896	—	—	—	76,431	—	—	—
Leon Rubber & Waterproofing Co., Limited	332,166	—	—	213,983	—	—	—	209,962	—	—	—	232,595	—	—	—	265,127	—	—	—
Leslie Forge Co., Limited, The (retained for registration purposes only)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Metropolitan-Cammell Carriage & Wagon Finance Co., Limited (to Oct., 1934)	2,735,026	—	—	878,784	—	—	—	568,985	—	—	—	426,100	—	—	—	977,121	—	—	—
Metropolitan-Cammell Weymann Motor Bodies Limited (Selling Agents only)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Miles Limited (Selling Agents only)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Patent Shaft & Axletree Co., Limited	435,069	—	—	339,776	—	—	—	413,092	—	—	—	40,758	—	—	—	53,587	—	—	—
Robinson & Co., Limited	997,732	—	—	479,546	—	—	—	357,124	—	—	—	623,542	—	—	—	781,095	—	—	—
Vickers (Tram) Limited	41,560	—	—	40,930	—	—	—	39,409	—	—	—	40,911	—	—	—	57,631	—	—	—
Vickers Train Lighting Co., Limited	194,471	—	—	49,538	—	—	—	40,989	—	—	—	25,766	—	—	—	36,698	—	—	—
Whitworth Iron Co., Limited, The	2,460	—	—	1,941	—	—	—	1,138	—	—	—	2,923	—	—	—	2,971	—	—	—

APPENDIX 3.

THE ESTIMATED VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY, ETC., EMPLOYED IN THE PRODUCTION OF ARMS AND MUNITIONS OF WAR THAT WOULD BE RENDERED REDUNDANT IN THE EVENT OF THE ESTABLISHMENT OF A STATE MONOPOLY.

	Sub-Total.	Total.	Remarks.
	£	£	
(1) <i>Vickers Group.</i>			
Vickers Train Lighting Company Limited ...	Nil.		Non-manufacturing concern.
Robert Boby Limited	Nil.		Commercial
British Separators Limited	Nil.		Non-manufacturing concern.
Cooke, Troughton & Simms Limited	Nil.		Provided that it is possible to obtain such an increase in Civil orders as would make up deficiency in Ordnance work—but see remarks in covering memorandum.
1000 Rubber & Waterproofing Company Limited	Nil.		Commercial.
Supermarine Aviation Works (Vickers) Limited	386,884		
Vickers (Aviation) Limited	678,243	1,065,127	
(2) <i>Vickers-Armstrongs Group.</i>			
Vickers-Armstrongs Limited	15,117,676		
Thames Ammunition Works Limited	37,950		Non-manufacturing concern.
Variable Speed Gear Limited	Nil.		
Whitehead Torpedo Company Limited	426,562		Commercial.
Palmers Hebburn Company Limited	Nil.		Commercial.
Vickers (Ireland) Limited	Nil.	15,582,188	
(3) <i>English Steel Corporation Group.</i>			
English Steel Corporation Limited	4,351,000		Proportion of Plant only.
Darlington Forge Limited... ..	1,394,500		
Firth-Vickers Stainless Steels Limited	—		} Commercial.
Industrial Steels Limited	—		
Taylor Brothers & Company Limited	—	5,745,500	
(4) <i>Metropolitan-Cammell Carriage & Wagon Company Limited Group.</i>			
Metropolitan-Cammell Carriage & Wagon Company Limited			} Commercial.
Metropolitan-Cammell-Weymann Motor Bodies Limited			
The Midland Railway-Carriage & Wagon Company Limited			
The Leeds Forge Company Limited			
The Patent Shaft & Axletree Company Limited			
The Willingsworth Iron Company Limited ...			
		£22,392,815	

APPENDIX 4c.
STATEMENT SHOWING YEARLY PERCENTAGE OF ARMAMENT PROFIT OF THE GROUP FOR THE FIVE YEARS
1930-34.

(a) after charging Special Expenditure

(b) before " " "

on

(1) Replacement value of Armament Land, Buildings, Plant, etc.

(2) Armament Turnover ;

and also the average for the five years.

Year.	(1) Replacement value of Armament Land, Buildings, Plant, etc. £	(2) Value of Armament Turnover. £	(a) Profit after charging Special Expenditure. £	(b) Profit before charging Special Expenditure. £	Percentage of Profit to Replacement Value.		Percentage of Profit to Turnover.	
					(a) to (1).	(b) to (1).	(a) to (2).	(b) to (2).
1930		7,618,222	658,298	688,122	2.94	3.07	8.64	9.03
1931		6,069,087	620,910	762,690	2.77	3.41	10.23	12.57
1932		5,437,817	288,720	632,666	1.29	2.83	5.31	11.63
1933		5,709,946	557,564	667,778	2.49	2.98	9.76	11.69
1934		7,288,451	654,239	818,349	2.92	3.65	8.98	11.23
	£22,392,815	32,123,523	2,779,740	3,269,575				
Yearly average for the five years ...		£6,424,704	555,948	713,915	2.48	3.19	8.65	11.11

APPENDIX 5.
THE AVERAGE NUMBER OF EMPLOYEES ENGAGED IN EACH OF THE LAST FIVE YEARS ON THE PRODUCTION OF ARMS AND MUNITIONS OF WAR, AND OTHER PRODUCTS, RESPECTIVELY.

	1930.		1931.		1932.		1933.		1934.		Average—5 years.		Remarks.
	Total.	Arms and Munitions.	Total.	Arms and Munitions.	Total.	Arms and Munitions.	Total.	Arms and Munitions.	Total.	Arms and Munitions.	Total.	Arms and Munitions.	
(1) <i>Vickers Group</i> — Vickers-Armstrongs Limited	—	—	—	—	—	—	—	—	—	—	—	—	Non manufacturing Company.
R. Babb, Limited	337	—	303	—	257	—	241	—	255	—	282	—	Non manufacturing Company.
British Separators, Limited	—	—	—	—	—	—	—	—	—	—	—	—	Non manufacturing Company.
Cochin, Troughton & Simms, Limited	641	239	402	160	323	111	305	76	280	343	425	134	291
Icco Rubber & Waterproofing	524	—	524	—	523	—	527	—	557	584	532	—	532
Snopramine Aviation Works (Vickers), Limited	751	751	711	711	687	687	722	722	732	732	721	721	—
Vickers (Aircraft) Limited	1,949	—	1,195	—	1,450	—	1,529	—	1,729	—	1,390	1,390	—
2) <i>Vickers-Armstrongs Group</i> — Vickers-Armstrongs Limited	10,005	13,351	20,007	11,059	16,599	11,747	15,078	12,724	2,004	18,365	17,991	12,465	5,490
Thames Ammunition Works, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
Variable Speed Gear, Limited	108	73	93	59	98	90	142	101	41	131	114	77	37
Whitcham Torpedo Company, Limited	519	519	475	475	411	411	401	401	709	503	503	503	—
Vickers (Trinidad) Limited	224	—	218	—	185	—	207	—	202	—	253	—	—
Palmer-Hubbard Company, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
3) <i>English Steel Corporation Group</i> — English Steel Corporation, Limited	6,431	900	5,831	950	4,317	690	4,454	1,050	3,404	5,245	5,050	890	4,150
Darlington Forge, Limited	930	100	706	150	418	75	343	10	10	10	415	46	330
Industrial Steels, Limited	630	—	630	540	572	—	630	—	630	666	612	—	612
Taylor, Brock & Company, Limited	1,182	—	1,182	768	508	—	508	550	812	764	—	764	—
4) <i>Metropolitan-Cannell Group</i> — Metropolitan-Cannell Carriage Works, Limited	4,576	—	4,576	—	2,821	1,549	1,549	918	918	1,806	2,224	—	2,224
Metropolitan-Cannell-Weymann Motor Bodies, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
Midland Railway Carriage & Wagon Company, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
Lodge Forge Company, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
Patent Sheet & Axlebox Company, Limited	1,322	—	1,306	—	971	—	1,064	—	1,064	1,172	1,129	—	1,129
Willesworth Iron Company, Limited	—	—	—	—	—	—	—	—	—	—	—	—	—
—	38,919	16,002	22,257	14,789	23,606	15,141	27,409	16,003	32,544	18,080	32,395	16,545	16,150

(1) *Vickers Group*—

APPENDIX 9.

STATEMENT ON THE PRACTICE OF THE FIRM IN REGARD TO THE ADVERTISEMENT OF, AND THE SOLICITING FOR ORDERS FOR, ARMS AND MUNITIONS OF WAR.

It is proposed to deal with this question under the following headings:—

- (a) Advertising;
 - (i) Press Advertising;
 - (ii) Exhibitions;
 - (iii) Sundry Advertising;
 - (b) Selling arrangements;
 - (c) Circulation of Pamphlets, Leaflets, etc.;
 - (d) Soliciting for Orders;

and the following Companies are dealt with individually:—

Vickers-Armstrongs Limited;
Vickers (Aviation) Limited and The Supermarine Aviation Works (Vickers) Limited;
The Whitehead Torpedo Co., Limited;
The Thames Ammunition Works Limited;
these being the main Armament producing Companies in the Group.

With regard to Vickers Limited, figures are given for this Company separately. It will be appreciated that as Vickers Limited is the parent Company of the Group, a certain amount of Group advertising is done by that Company.

In regard to the following Companies:—

English Steel Corporation Limited;
Industrial Steels Limited.
Taylor Bros. & Co., Limited;
The Metropolitan-Cammell Carriage & Wagon Co., Limited, and Subsidiaries;
Robert Boby Limited;
Cooke Troughton & Simms Limited;
British Separators Limited;
Industrial Steels Limited;
Variable Speed Gear Limited;
Vickers (Ireland) Limited;
Ioco Rubber & Waterproofing Co., Limited;
Vickers Train Lighting Co., Limited;

it is again pointed out that no armament advertising in any shape or form is done by them and this despite the fact that the business of some of them includes certain armament products.

VICKERS-ARMSTRONGS LIMITED.

(a) ADVERTISING.

(i) Press.

Detailed returns are appended, giving the expenditure on Press Advertising of Armament products by this Company for the last five years, and showing the names of the Journals in which the advertisements were inserted. From these lists it will be seen that advertising of this nature is almost exclusively confined to service journals. Typical examples of advertisements which have appeared are attached.*

In regard to advertisements which appear in foreign journals, in practically all cases these have been undertaken at the express request of the Agents in the particular countries concerned. The general view of the Company is that armament advertising whether in the public or technical press is of little value, but it is found in certain instances that the Agents regard such advertising as an advantage from their own point of view as showing that they represent important British interests.

Much has been said and written in regard to advertisements for Carden-Lloyd Commercial and Military Vehicles and Field and Anti-aircraft Guns, which appeared in the German papers "Wehr und Waffen" and "Militär Wochenblatt". Explanations of the reason for these advertisements have been given by the Company on various occasions, but it is desired to take the opportunity again of stating that the reason for the insertion of these advertisements was that the Journals in question are regarded by Military authorities as two of the leading technical journals on the subject, and have a considerable circulation among staff officers in South

American Republics and North European countries where the German language is used extensively. For this reason the advertising was undertaken, and not as has been suggested with a view to selling the products advertised, or in fact any type of armaments, to Germany. In any event such sales would not have been possible to Germany or any other country coming under the prohibitions of the Treaty of Versailles.

(ii) Exhibitions.

On three occasions only within the last five years has the Company taken any part (apart from the display of furniture and crane indicators in trade exhibitions in this country) in any exhibitions at home or abroad. The three cases in question were the Canadian National Exhibition and the Copenhagen Exhibition in 1932 and the Brussels Exhibition, which is at present running, at all of which exhibitions there was a Vickers Group stand. In the Group's stands at these Exhibitions no armament material was exhibited, it being considered that such a means of advertising would not be of any service to the Company. At Copenhagen, however, at the request of the Danish Government, a 75 mm. Anti-aircraft Gun was exhibited in the grounds of the Exhibition.

Showroom.

It may be of interest to the Commission to know that a permanent Showroom is maintained at Vickers House, Broadway, Westminster, London, S.W.1, which is the Head Office of Vickers Limited and Vickers-Armstrongs Limited, in which are exhibited examples of many of the types of production of the Companies both Armament and commercial.

(iii) Sundry Advertising.

Apart from the annual distribution to clients, of diaries bearing the name of the Company, and pamphlets, which are more particularly referred to hereafter, general sundry advertising is negligible.

From the above remarks it will be gathered that the policy of the Company, generally speaking, is that advertising of armaments with a view to promoting sales is of little, if any, value.

(b) SELLING ARRANGEMENTS.

It is convenient to refer to this matter of selling arrangements under two headings, viz.:—

- (i) at home, and
- (ii) abroad.

(i) Home.

As to home sales, i.e., sales to British Government Departments, no propaganda is used, and there are no selling arrangements, as generally understood—that is to say, no agents are employed and no soliciting for orders from the Departments concerned is carried on. There is, of course particularly as regards the class of orders referred to in 2 below, continued contact and collaboration between the Company and the Government Departments, both on technical and commercial questions, and the services of the Company in all directions are regarded as being fully at the disposal of those Departments. It is pointed out that the practice of the Government Departments may be divided into two categories:—

1. The placing of orders for material which is produced by several Companies throughout the country.

2. Orders for material for which Vickers-Armstrongs Limited is the sole Company in the country equipped for production.

As regards the first class of materials the practice of the Government Departments is to issue enquiries to firms on their lists capable of producing the material required, and this Company, in common with the others, passes in its tender, the orders eventually being placed with the Company selected by the Department concerned.

In regard to the second category, the method adopted by the Government Departments may be divided into two classes; firstly, when the order is placed on the basis that price is fixed by the checking of estimates; and secondly, when the order is placed on a "costed" basis.

* Not reproduced.

It will be seen, therefore, that the practice of the Departments outlined above does not afford any scope for the use of general sales methods, and such methods are not employed by this Company.

(ii) *Abroad.*

The practice of the Company is to appoint a local agent in each country where there is a possibility of business, and in appointing such agents to select a company or individual of the highest possible standing. Wherever possible, the appointee is a British firm or a British national. As a general rule agents appointed by the Company represent it not only for armament sales, but for other commercial products of the Company, and in some cases, they act also for a number of Companies in the Vickers Group. A copy of the last issue of the Group "Directory of Foreign Representatives and Overseas Arrangements" is supplied for the information of the Commission.

In regard to remuneration, the general practice is that the agents are paid on a commission basis, commission only being paid on orders received through their agencies and upon payment being received by the Company. In certain cases the agent is given a fixed annual sum or minimum commission, and also in many cases his out-of-pocket expenses, such as cost of cables, travelling, etc., are refunded. A copy of the standard form of agreement with agents is attached.*

In regard to the agent's activities his chief function is to keep the Company informed of armament requirements in his particular country, as and when he learns that the Government of that country is considering or has decided to make purchases. It is not his function to endeavour to create a market for armaments, nor is it the wish or practice of the Company to encourage agents to work on this basis. The agent is expected when called upon to be in a position to advise the Company on matters of local finance and general contract arrangements. He has also to submit tenders on behalf of the Company, such tenders being prepared here and forwarded to him for transmission to the Government concerned. Where information is received from an agent as to a Government's requirements, the final decision as to whether or not a tender will be forwarded is made in London, and if it be decided to tender and the programme is a considerable one, it is the practice of the Company to send technical and commercial experts to discuss with the officials of the Government concerned matters of design, technical data and contract terms, and in such cases negotiations for the contract are carried through by the agent with the advice and assistance of the Company's own representatives.

It frequently happens that foreign Governments interested in a particular type of armament material request that demonstrations of the Company's products should be made to them in such cases, where circumstances appear to justify the expenditure, the necessary material is sent abroad accompanied by technical experts for the purposes of demonstration, but such demonstrations are only carried out where the Company has reasonable grounds for being satisfied that the country concerned has decided to purchase such material. In no case are demonstrations arranged for propaganda purposes. Similarly the Company gives demonstrations of its material in this country at the request of missions from foreign Governments who are sent here by their Governments for the purpose of inspecting and reporting on the products of the Company.

It should be mentioned also that cinematograph films are taken of trials and demonstrations primarily for record purposes, but these are used occasionally as an alternative to a demonstration of the actual product. They are sometimes sent to the agents upon request for specific purposes.

It is also pointed out that in no case does any foreign agent of the Company carry stocks of armament material.

(c) *CIRCULATION OF PAMPHLETS AND LEAFLETS.*

The Company prepares pamphlets and leaflets descriptive of the characteristics of its various products and giving the requisite technical and other data with regard thereto, these being issued to agents abroad with the object of providing them with such general information as will enable them to deal with any question raised by the Governments of their respective countries.

These pamphlets and leaflets, of course, are only issued in the case of products which the Company is not precluded by the British Government from selling abroad, and in no case are they issued broadcast. Copies of typical examples of these pamphlets are attached hereto.*

(d) *SOLICITING FOR ORDERS.*

The selling arrangements of the Company being as outlined above, it is emphasised that there is no general practice of soliciting for orders for armament material. Only where it is definitely known that the Government is in the market for a certain type of material, and where the agent of the Company concerned so recommends, does the Company send representatives, technical or otherwise abroad.

During the last five years one journey abroad was made by a Director of the Company, that being the tour undertaken by a Director in 1932 to the Baltic Countries, the object then being to visit the agents in the countries concerned with a view to bringing their information up-to-date, and to inspect their agency arrangements. On another occasion two directors proceeded to a North European country in connection with a definite enquiry, while in 1931 a director visited Canada purely in connection with the Company's commercial interests.

VICKERS LIMITED.

Vickers Limited being the parent Company of the Group has to a very limited extent carried out certain press advertising. The amounts expended in this direction, and the names of the papers in which the Group advertisements appeared are shown in the Schedule attached.†

Typical examples of advertisements are attached,* from which it will be seen that they are of a general nature, and not specifically relating to armament material.

The Company also prepares for distribution to agents and clients a booklet entitled "Vickers Limited and its Interests", a specimen of the last issue of which is appended.*

A special publication entitled "The Flag that Trade follows" was prepared in connection with the Canadian National Exhibition, and a specimen of this is enclosed. The cost of these two booklets is included under the heading of Group Advertising in the Schedule referred to above.

On the other hand this Company during the last five years has expended the sum of approximately £14,000 on advertising in the press in connection with the Annual General Meeting, and this, together with the Group advertisements referred to above (including the two publications mentioned in the preceding paragraphs) constitutes the sole expenditure on advertising by this Company.

Advertising in the foreign press in this direction is undertaken because it is the general advice of the Group's agents that the publication of the information contained in these advertisements is helpful to them in regard to all business, armaments and general, as it gives an indication of the financial standing and strength of the Group.

VICKERS (AVIATION) LIMITED.

THE SUPERMARINE AVIATION WORKS (VICKERS) LIMITED.

A. ADVERTISING.

(i) *Press and Sundry Advertising.*

The amounts expended during the last five years in connection with space in journals and catalogues,

* Not reproduced.

† See p. 412.

* See p. 410.

and on diaries and playing cards which are distributed annually, are shown hereunder:—

Vickers (Aviation) Limited.

	1930	1931	1932	1933	1934
Home	£2,215	£3,145	£2,576	£2,083	£1,453
Foreign	296	300	293	164	83

The Supermarine Aviation Works (Vickers) Limited.

	1930	1931	1932	1933	1934
Home	£1,694	£1,955	£1,760	£1,538	£1,698
Foreign	167	124	54	47	113

The following list will give an indication of the class of journals in which advertisements have appeared:—

Aircraft Engineering.
Aircraft Engineering Buyers Gazette.
Aircraft (Australia).
Army Navy and Air Force Gazette.
Air Annual British Empire.
The Aeroplane.
Jane's All the World's Aircraft.
R.A.F. Programme (Hendon).
R.A.F. Programme (Heliopolis).
R.A.F. Quarterly.
R.A.F. Milton Stores.
R.A.F. Fourstore Sports Club.
Flight.
Royal Aeronautical Journal.
Vickers News.
Wings (New Zealand).
The Times Trade Engineering.
R.A.F. Cranwell College Journal.

With regard to foreign advertising the Companies act on the advice of their Agents and such advertisements, with few exceptions, have been confined to the Technical Press.

The sundry advertising consists in the distribution of diaries and playing cards, and is comparatively unimportant.

(ii) *Exhibitions.*

The names of the exhibitions in which the Aviation Companies have participated during the five years in question are given hereunder:—

Name of Exhibition.	Material Exhibited.
Vickers (Aviation) Limited	Buenos Aires Aircraft accessories sampleStreamline wires, models of aircraft, photographs, illuminated transparencies, cinema films.
Paris ...	Do.
	Note.—The "VILDEBEST" machine was demonstrated at the Aerodrome.
Canada ...	Aircraft accessories, etc.
	Photographs.
Copenhagen	Aircraft accessories.
Milan ...	Do.
The Supermarine Aviation Works (Vickers) Limited	Antwerp ... Schneider Trophy Machine.
Paris ...	Models of aircraft and illuminated transparencies, cinema films.
Buenos Aires	Models of aircraft, cinema films, photographs, etc.
Canada ...	Schneider Trophy Machine and models of aircraft.

B. *SELLING ARRANGEMENTS.*

Home.—With regard to sales to British Government Departments, the methods followed by the Aviation Companies are, and must necessarily be, analogous to those employed by Vickers-Armstrongs Limited.

Abroad.—Local Agents are appointed as necessary. As in the case of Vickers-Armstrongs Limited, Companies or individuals of high standing are appointed and, indeed, in many cases the Agent of Vickers-Armstrongs Limited also represents the

Aviation Companies. The Agents are remunerated by a commission on sales with the addition, in some cases, of an allowance for expenses. In one or two cases in the past a salaried employee with technical knowledge has been attached to the office of the agent, but there is now only one official so employed. A copy of the standard form of Agency Agreement is attached.*

The Agent's duty is to report on the types of aircraft which the Government of the country, for which he is the Company's representative, has decided to purchase. If the types approximate those in manufacture at the works of the Aviation Companies the Agent is then supplied with complete specifications, prices and delivery dates, and it is left to him to advise the Company on matters of finance and contract arrangements, and to negotiate the sale.

As in the case of Vickers-Armstrongs Limited, the decision as to whether a tender shall be submitted is made by the Head Office of the Companies.

Occasionally, at the request of the Agent, representatives of the Companies are sent to advise on technical and commercial matters and to collaborate with the Agent in his negotiations.

In the years 1930/32 two or three demonstration flights were undertaken. The Chinese Authorities requested Vickers (Aviation) Limited to send a "VESPA" Machine to Shanghai for demonstration and issued a permit for its importation.

In 1931 a pilot of the Company flew a machine to certain Baltic countries, this tour being undertaken on the advice of the Agents, while in 1930 a "VELLORE" freighter was flown to Australia with a view to demonstrating the utility of that machine for carrying heavy loads over long distances.

C. *CIRCULATION OF PAMPHLETS, LEAFLETS, ETC.*

Generally when a new type of aircraft is produced and adopted by the Royal Air Force an illustrated catalogue is prepared, giving its main characteristics. Similarly, catalogues of the large number of Accessories made by Vickers (Aviation) Limited are compiled from time to time. Copies of such catalogues are sent to the Agents to enable them to deal with enquiries from their respective Governments, but it is emphasized that they are not issued indiscriminately. It may be mentioned that the Accessories referred to are supplied for civil as well as military aircraft.

A copy of a typical Catalogue, that dealing with the Vickers "Vildebeest", is enclosed.

D. *SOLICITING FOR ORDERS.*

There is no general practice of soliciting for orders. As has been noted above, when it is known that a Government is in the market for a type of aircraft which the Aviation Companies can supply, and when the Agent so requests, the Companies may send representatives abroad to assist in the negotiations.

THE WHITEHEAD TORPEDO CO., LIMITED.

It is unnecessary to enter into any great detail with regard to this Company.

The advertising undertaken by it is negligible, as will be seen from the figures quoted hereunder:—

	1930	1931	1932	1933	1934
Home	£85	£38	£110	£124	£114
Foreign	Nil	Nil	Nil	Nil	90

The foreign advertising in 1934 covered paragraphs inserted in two Technical Journals and was undertaken at the express desire of the Agents concerned.

This Company publishes no catalogues and undertakes nothing which can be described as sundry advertising.

The remarks regarding the selling arrangements of Vickers-Armstrongs Limited apply generally to this Company. The assurance is given that The Whitehead Torpedo Company, Limited, has no system of soliciting for orders, negotiations being initiated only upon receipt of a definite enquiry from a Government. Representatives are not sent abroad except on the express invitation of the Government concerned.

THE THAMES AMMUNITION WORKS LIMITED.

It is unnecessary to deal with this Company since for its Armament productions it acts only as a sub-contractor to Vickers-Armstrongs Limited.

* See p. 412.

SCHEDULE OF EXPENDITURE ON ARMAMENT ADVERTISING.

VICKERS-ARMSTRONGS LTD.

Expenditure on Armament Advertising, 1930-1934.

	Home.	Abroad.
	£ s. d.	£ s. d.
1930	191 4 8	511 13 8
1931	407 10 4	483 3 11
1932	716 8 8	673 19 0
1933	524 19 6	342 3 11
1934	496 6 10	413 18 10
	2,336 10 0	2,424 19 4
Total	£4,761 9s. 4d.	

Average ... £952 5s. 10d. per annum.

Armament Advertising, 1930.

	Home.	Abroad.
	£ s. d.	£ s. d.
Army, Navy and Air Force Gazette	19 4 8	
Aeroplane — Hendon Pageant No.	8 0 0	
Navy List	45 0 0	
Navy	9 0 0	
H.M.S. "Excellent" Centenary Tattoo Programme	60 0 0	
Brassey's Naval Annual ...	25 0 0	
Jane's "Fighting Ships"	25 0 0	
Revista del Centro Naval (Argentina)		34 9 6
Revista Militar (Argentina)		59 2 0
Chilean Review (Chile) ...		96 0 0
Dansk-Artilleri Tidsskrift (Denmark)		6 12 0
Laivastohlehti (Finland) ...		41 13 0
Suomen Sotilasaikakauslehti (Finland)		21 15 0
Annuaire du Commerce Didot-Bottin (France) ...		4 5 2
El Economista (Spain) ...		36 0 0
La Guerra y su Preparacion (Spain)		66 18 0
Memorial de Artilleria (Spain)		60 0 0
Revista General de Marina (Spain)		25 0 0
Vida Maritima (Spain) ...		38 14 0
Jadranska Straza (Yugoslavia)		21 5 0
	£191 4 8	£511 13 8
Total ...	£702 18 4	

Armament Advertising, 1931.

	Home.	Abroad.
	£ s. d.	£ s. d.
Army, Navy & Air Force Gazette	269 5 4	
Royal Tank Corps Journal	32 10 0	
Small Arms Training ...	12 0 0	
Brassey's Annual	25 0 0	
Jane's "Fighting Ships"	25 0 0	
Portsmouth Navy Week Programme	20 0 0	
Chatham Navy Week Programme	20 0 0	
Royal Naval Staff College Magazine	3 15 0	
Revista Del Centro Naval (Argentina)		11 5 0
Revista Militar (Argentina)		19 5 0
Chilean Review (Chile) ...		96 0 0
Dansk Artilleri Tidsskrift (Denmark)		5 8 0
Militaert Tidsskrift (Denmark)		21 13 4
Tidsskrift for Sovaesen (Denmark)		2 10 0
Laivastolehti (Finland) ...		33 15 0
Suomen Sotilasaikakauslehti (Finland)		29 2 0
Annuaire du Commerce Didot-Bottin (France) ...		4 5 2

Armament Advertising, 1931—cont.

	Home.	Abroad.
	£ s. d.	£ s. d.
El Economista (Spain) ...		39 7 6
La Guerra y su Preparacion (Spain)		66 18 0
Memorial de Artilleria (Spain)		60 0 0
Revista General de Marina (Spain)		16 13 4
Vida Maritima (Spain) ...		38 14 0
De re Bellica (Circulated among all Spanish speaking countries)		38 7 7
	£407 10 4	£483 3 11
Total ...	£890 14 3	

Armament Advertising, 1932.

	Home.	Abroad.
	£ s. d.	£ s. d.
Army, Navy & Air Force Gazette	259 13 0	
Aeroplane	132 0 0	
Royal United Service Journal	47 16 8	
Royal Tank Corps Journal	39 0 0	
R.A.F. Quarterly	30 0 0	
Army Quarterly	25 4 0	
Air Annual of British Empire	25 0 0	
All the World's Aircraft ...	25 0 0	
Navy List	54 0 0	
Portsmouth Navy Week Guide, 1932	30 0 0	
Chatham Navy Week Programme, 1932	20 0 0	
Jane's "Fighting Ships"	25 0 0	
Royal Naval Staff College Annual (December) ...	3 15 0	
Revista Del Centro-Naval (Argentina)		3 7 8
Revista Militar (Argentina)		22 10 0
Review of the River Plate (Empire Supplement) (Argentina)		16 0 0
Militaert Tidsskrift (Denmark)		5 10 6
Dansk Artilleri Tidsskrift (Denmark)		5 9 0
Tidsskrift for Sovaesen (Denmark)		4 11 8
Laivastolehti (Finland) ...		45 0 0
Suomen Sotilasaikakauslehti (Finland)		39 0 0
Annuaire Didot - Bottin (France)		4 5 2
Revue d'Artillerie (France)		15 7 8
Revue Militaire Française (France)		10 6 0
Militar Wochenblatt (Germany)		104 14 9
Wehr und Waffen (Germany)		67 4 9
Aeroploia (Greece)		23 14 0
Il Contro Aereo (Italy) ...		33 6 5
Revista Militar Italiano (Italy)		32 5 2
Przegląd Wojskowy (Poland)		58 7 6
Anais do Club Militar Naval (Portugal)		10 0 0
Memorial de Artilleria (Spain)		60 0 0
Revista General de Marina (Spain)		18 15 0
Army Ordnance (U.S.A.) ...		94 3 9
	£716 8 8	£673 19 0
Total ...	£1,390 7 8	

Armament Advertising, 1933.			Armament Advertising, 1934.		
	Home. £ s. d.	Abroad. £ s. d.		Home. £ s. d.	Abroad. £ s. d.
Army, Navy and Air Force Gazette	192 6 8		Army, Navy and Air Force Gazette	250 0 0	
Royal United Service Journal	45 5 4		Royal United Service Journal	45 5 4	
Royal Tank Corps Journal	39 0 0		Royal Tank Corps Journal	39 0 0	
Navy List	54 0 0		Jane's "All the World's Aircraft"	25 0 0	
The Navy	20 0 0		Navy List	54 0 0	
Jane's "Fighting Ships"	25 0 0		The Navy	20 0 0	
Brassey's Annual	25 0 0		Jane's "Fighting Ships"	25 0 0	
Portsmouth Navy Week Programme	30 0 0		Portsmouth, Chatham and Plymouth Navy Week Programmes	32 0 0	
Plymouth Navy Week Programme	22 10 0		London Navy Week Programme	4 4 0	
Chatham Navy Week Programme	20 0 0		Royal Naval Staff College Magazine	1 17 6	
Greenwich Naval Pageant Programme	30 0 0		Revista del Centro Naval (Argentine)		6 14 0
Royal Naval Staff College Magazine	1 17 6		Almanaque Astronomico (Argentine)		6 9 7
Air Annual of British Empire	20 0 0		Annuaire du Congo Belge (Belgium)		6 7 3
Revista del Centro Naval (Argentine)		11 10 0	Bulletin Belge des Sciences Militaires (Belgium) ...		16 7 0
La Rafale (Belgium)		1 15 0	La Rafale (Belgium)		1 18 0
Dansk Artilleri Tidsskrift (Denmark)		5 0 0	Brazilian Press (Brazil) ...		60 0 0
Tidsskrift for Søvaesen (Denmark)		4 10 10	Dansk Artilleri Tidsskrift (Denmark)		5 0 0
Hakkapelitita (British Week) (Finland)		14 0 0	Tidsskrift for Søvaesen (Denmark)		5 0 0
Laivastolehti (Finland)		45 0 0	Merendus (Estonia)		3 0 0
Suomen Sotilasaikakauslehti (Finland)		39 0 0	Paevaleht (Estonia)		12 10 0
Uusi Suomi (British Week) (Finland)		15 0 0	Laivastolehti (Finland) ...		22 10 0
Polska Zbrojna (Poland)		13 12 0	Rintamamies (Finland) ...		4 8 6
Anais do Club Militar Naval (Portugal)		10 0 0	Suomen Sotilas (Finland) ...		8 17 0
El Economista (Spain)		43 15 0	Suomen Sotilasaikakauslehti (Finland)		29 5 0
Revista de Estudios Militares (Spain)		52 12 7	Polska Zbrojna (Poland) ...		22 14 8
Revista General de Marina (Spain)		18 15 0	Anais do Club Militar Naval (Portugal)		10 0 0
Vida Maritima (Spain)		30 0 0	Defeza Nacional (Portugal) ...		4 2 0
Army Ordnance (U.S.A.) ...		37 13 6	El Economista (Spain)		48 12 2
			Memorial de Artilleria (Spain)		15 5 6
			Revista de Estudios Militares (Spain)		55 11 0
			Revista General de Marina (Spain)		17 3 9
			Vida Maritima (Spain)		33 6 8
			Army Ordnance (U.S.A.) ...		18 16 9
	£524 19 6	£342 3 11		£496 6 10	£413 18 10
Total ...	£867 3 5		Total ...	£910 5s. 8d.	

STANDARD AGENCY AGREEMENT VICKERS-ARMSTRONGS, LIMITED

MEMORANDUM OF AGREEMENT made this
day of
thousand nine hundred and one
Between VICKERS-ARMSTRONGS LIMITED whose
Registered Office is situate at Vickers House
Broadway Westminster in the County of London
England (hereinafter referred to as "the Com-
pany") of the one part and
of
(hereinafter referred to as "the Agent") of the
other part.

Whereby it is mutually agreed as follows:—

1. The Company hereby appoint the Agent and the Agent hereby agrees to act as their sole Agent in the Territory comprising

(hereinafter referred to as "the Territory") for the sale of their Products as defined in the Schedule "A" attached hereto which shall be considered as forming part of this agreement or any other product which may from time to time be notified by the

Company to the Agent in writing and all of which products are included in the expression "the Products" whenever hereinafter used.

2. This Agreement shall be deemed to have commenced on the day of 19 and subject as hereinafter provided shall continue for a period of year(s) and thereafter unless and until determined at the end of the said year(s) or at any time thereafter by months' previous notice in writing given by either party to the other subject however that in the event of the Company deciding to cease the manufacture of any product named in Schedule "A" attached hereto the Company reserve the right to cancel and exclude such item from this Agreement by giving to the Agent notice in writing at any time.

3. The Agent undertakes to use his best endeavours to promote and obtain orders for the sale of the Products and may obtain enquiries from any source whatsoever in the Territory but shall not

knowingly sell the Products for delivery outside the Territory. The Agent shall wherever possible when forwarding such enquiries or orders send full particulars including drawings and specifications of requirements necessary to enable the Company to prepare tenders or to proceed with the execution of the order with the least delay but the Company in their discretion shall have the right to decline to submit a tender on any enquiry or to accept any order.

4. The Agent during the currency of this Agreement shall not represent or be interested directly or indirectly in any manner whatsoever in any business firm or company manufacturing or selling products of a similar nature to or likely to compete with those covered by this Agreement without the Company's previous written consent.

5. The Agent shall unless otherwise directed retain in his possession all correspondence or other documents sent him by the Company and shall not at any time hereafter divulge any information in relation to the Company's affairs or business or method of carrying on the same.

6. The Agent shall keep up-to-date records of all enquiries transactions and proceedings concerning the business of the Agency and shall from time to time upon request by the Company supply to the Company periodical or special Reports Returns or other information.

7. The Agent shall not and shall not be deemed to have authority to incur any liability or in any way pledge the Company's credit or accept any order or make any Contract binding on the Company without the Company first approving the terms of such order or contract and the Agent having received in writing in the latter case the necessary authority thereafter to sign such contract.

8. The Company reserve the right to themselves at all times to deal direct with any enquiry emanating from the Territory and/or for ultimate delivery into the Territory received by them through financial connections or other connections of whatsoever nature and in the event of orders being accepted by the Company as the result of such enquiry the commission (if any) payable to the Agent shall be in the sole and absolute discretion of the Company.

9. Subject to the due observance and performance by the Agent of the provisions herein contained and on his part to be observed and performed and subject as herein provided the Company will credit the Agent with Commissions at the rates specified in Schedule "A" attached hereto upon the sales of the Products the orders for which emanate from and the ultimate deliveries of which are made into the Territory to be calculated on the net amounts received by the Company for those sales excluding the cost of all packing carriage ocean freight insurance Customs Duties or other charges.

10. The Company will as soon as possible after the last days of March, June, September and December in each year furnish to the Agent an account showing the Commission credited to him for the quarter immediately preceding and will remit or credit payment therefor as soon as possible thereafter provided always that no Commission shall be credited to the Agent unless and until payment for the Products shall have been actually received by the Company but in cases where the Company receive instalments of the sales price the Commission shall be credited to the Agent in proportion to and as and when the Company receive cash.

11. In the event of a Contract being cancelled owing to circumstances beyond the control of the Company or the price for such Contract being modified in any way whatsoever the Agent shall be credited with Commission only on such sums as are actually received and retained by the Company in respect of such contract. Where Compensation is received by the Company in respect of any cancelled Contract the Agent shall be credited with Commission on the net amount received and retained by the Company less the deductions provided for in clause 9 hereof.

12. In the event of any moneys due to the Company being paid direct to the Agent or if the Agent shall collect such moneys on behalf of the Company the Agent shall immediately remit such moneys intact to the Company or as the Company may direct. The Agent shall not be entitled to deduct from such moneys nor from any amount due by the Agent to the Company any Commission or expenses claimed by the Agent.

13. In the event of the Products the order for which emanated from outside the Territory being delivered outside the Territory for ultimate delivery into the Territory the Agent shall only be credited with one half of the Commissions provided for in Clause 9 hereof.

14. No commission will be paid on any Order received after the termination of this Agreement notwithstanding that the Agent may have been concerned in or responsible for initiating the said order or whether quotations had been submitted during the period of the Agency or not and upon the termination of this Agreement by effluxion of time or otherwise a List of Orders outstanding to that date for the Products upon which the Agent is entitled to Commission shall be supplied to the Agent by the Company and in the event of the Agent failing to notify the Company of his acceptance of such List within thirty days after its receipt the Agent shall be deemed to have accepted such List. In the event of the Agent disagreeing with such List the Agent shall notify the Company of the reason for such disagreement within the said thirty days and failing agreement within a further thirty days the dispute shall be settled by Messrs. Deloitte Plender Griffiths & Company or other Auditor for the time being of the Company in accordance with clause 15 hereof. The Agent shall notwithstanding such termination be credited with Commission as and when the Company receive payments in respect to the Orders in such List. No commission shall be payable hereunder after such termination otherwise than in respect to the Orders included in the List.

15. In the event of any dispute as to the accuracy of a Statement of Commission or anything contained therein or other account a Certificate signed by Messrs. Deloitte Plender Griffiths & Company or other Auditor for the time being of the Company shall be conclusive and binding upon both parties.

16. The Company will pay to the Agent such expenses as may be included in Schedule "B" attached hereto or which may be sanctioned in writing from time to time by the Company.

17. In the event of the Agent being requested to perform any special duty over and above that required by this Agreement the Company agree to remunerate him as they in their sole discretion think fit.

18. The Company will at their sole discretion forward to the Agent free of charge catalogues and other publicity matter and particulars of new products likely to be of interest in the furtherance of business. The Agent shall distribute these catalogues and other publicity matter as may be directed or otherwise make use of the information in the most advantageous manner.

19. Upon the termination of this Agreement from any cause or at any time previous at the request of the Company the Agent shall return to the Company or otherwise dispose of as the Company may instruct all catalogues samples pamphlets plans specifications or other documents or papers whatsoever sent to the Agent and relating to the business of the Company and which he shall have in his possession or under his control.

20. The Company shall have the right by giving notice in writing to terminate this Agreement forthwith in any of the following events that is to say

(a) If the Agent commits a breach of any of the terms and conditions of this Agreement.

(b) If the Agent becomes insolvent or enters into liquidation whether compulsorily or voluntarily or compounds with his Creditors.

(e) If from any cause the Agent shall be prevented from performing his duties hereunder for a period of three consecutive months or for a total period of six months in any one period of twelve calendar months.

(d) If the Agent shall be guilty of any conduct which in the opinion of the Company is prejudicial to the Company's interests.

(e) If the Agent purports to assign or charge the benefits of the Agreement without the written consent of the Company.

(f) If any hostilities break out or are threatened or there be a revolution in the Territory which would be in the Company's opinion detrimental to their interests.

21. The Company shall not be responsible for acts or defaults of the Agent or those of his employees or representatives.

22. Nothing in this Agreement shall constitute or be deemed to constitute a partnership nor shall the Agent act as a "Principal" in any transaction other than in the disposal of Consignment Stock.

23. The Agent shall notify the Company immediately of any change of address from that referred to in the heading of this Agreement or of any alteration in the constitution of his firm.

24. All previous Agreements and arrangements made between the Company and the Agent are hereby cancelled.

25. All correspondence and Notices to the Agent will be sent to the principal and last known address of the Agent and such correspondence and Notices shall be deemed to have been effectively served if left at or sent by Registered post or transmitted by cable telegraph or wireless telegraphy to the address aforesaid and if sent by post cable telegraph or wireless telegraphy shall be deemed to have been served on the day on which in the normal course of transmission they would be delivered.

26. All communications to the Company affecting this Agreement shall unless otherwise directed be left at or sent to the Registered Offices of the Company as aforesaid.

27. The words "in writing" whenever referred to in this Agreement shall be deemed to mean any communication sent by letter telegram cablegram or wireless telegraphy.

28. Subject to the provisions of Clauses 14 and 15 of this Agreement any dispute which may arise between the Company and the Agent touching the true construction of these presents or the rights and liabilities of either of the parties hereto shall as and when the same shall arise and unless otherwise herein expressly provided be referred to the decision of an Arbitrator in London to be agreed upon between the parties or in default of agreement for fourteen days to be appointed at the request of either party by the President for the time being of the Institution of Civil Engineers and this shall be deemed to be a submission to Arbitration within the meaning of the Arbitration Act 1889 or any statutory modification thereof.

29. This Agreement shall in all respects be construed and carried into effect as a Contract made in England and according to English Law.

IN WITNESS whereof these presents are entered into on the date aforesaid.

Signed for and on behalf of Vickers-Armstrongs Limited

Director.

Witness

Signed for and on behalf of the Agent

Witness

SCHEDULE OF GROUP ADVERTISING 1930-34.

VICKERS LIMITED.											
					Total.						
1930.							1933.				
					£	s. d.					
South American Trade Annual					£521	0 0	"Industria Britanica"				
1931.							"Vickers Limited and Its Interests"				
"Daily Telegraph" 16.2.31					250	0 0	"Financial News" (British Export Industries Supplement)				
"Kurger Poranny" (Poland)					189	0 0	"Assoc. Electrical Industries News"				
"Vickers and Vickers-Armstrongs News"					27	19 3	"Vickers News"				
					£466	19 3					
							£779 16 11				
1932.							1934.				
"Industria Britanica"					373	6 0	"Industria Britanica"				
"Vickers News"					25	0 0	"Times Weekly Edition"				
"Anglo-American Trade Journal"					22	4 0	"Associated Electrical Industries News"				
"Assoc. Electrical Industries News"					45	15 8	"Vickers News"				
"Liverpool Journal of Commerce"					8	13 5	"Financial News" (British Export Industries No. 1934)				
"Scottish Trade Mission Ship Catalogue"					4	12 6	"Financial Times" (Special Review No.)				
"Vickers Limited and Its Interests"					144	6 2					
"The Flag that Trade Follows"					145	6 6					
"Times"—British Industries Fair No.					555	0 0					
"Morning Post"					150	0 0					
					£1,474	4 3					
							£476 9 6				

STANDARD AGENCY AGREEMENT.

VICKERS (AVIATION) LIMITED.

Dear Sirs,

1. We hereby offer to appoint you our exclusive representatives for the sale of our aviation products (excluding armaments) for the country of on commission terms set out on the attached memorandum from the date hereof until determined (a) on or after the 31st December, 1934, by either

party having given to the other 6 months' previous notice in writing, or (b) forthwith at our option by giving you notice in writing, in the event of your failing to observe the conditions hereunder, becoming insolvent, or going into liquidation, or if you should be prevented for any reason from performing your duties hereunder, or if you should be guilty of any conduct prejudicial to our interests.

2. You undertake

(a) To do your utmost to promote the sale of our aviation products, and not to be interested in the sale in or elsewhere of the aviation products of any other firm without our previous consent in writing.

(b) To refer to us all enquiries you may receive for aircraft and aviation materials of any kind whatsoever.

(c) To report to us at least once a month particulars of any aviation developments in your territory.

(d) To submit only such quotations as we shall give you and not to vary same without our consent; we having the right to refuse any order not in accordance with our quotation.

3. Apart from telegrams necessitated by special and urgent business, or expenditure specially incurred at our request, we are not to be responsible in any way for any expenses you may incur.

4. Nothing in this arrangement shall be taken as giving you authority to pledge this Company's credit or to enter into any contract without their previous knowledge and consent, or as constituting partnership relations between us.

5. On the termination of this arrangement we shall only be liable to pay you commission as and

when it shall become due on orders actually accepted prior to the date of such termination, and shall not be liable for any commission on further orders even though the customer may have been originally introduced by yourselves.

6. You undertake to remit forthwith any sums received by you on account of goods supplied by us.

7. Any dispute which may arise touching the true construction of these presents shall be referred to the decision of an arbitrator in London to be agreed upon between the parties or in default of agreement for fourteen days to be appointed at the request of either party by the President for the time being of the Institution of Civil Engineers and this shall be deemed to be a submission to Arbitration within the meaning of the Arbitration Act 1889 or any statutory modification thereof.

8. The terms of this arrangement are to be construed in accordance with English Law.

9. Your acknowledgement accepting the terms of this letter is sufficient for our purpose to constitute the agreement between us.

Yours faithfully,

For VICKERS (AVIATION) LIMITED,
Secretary.

APPENDIX 10.

STATEMENT SUBMITTED BY THE ENGLISH STEEL CORPORATION, LTD., WITH REFERENCE TO EVIDENCE OF THE UNION OF DEMOCRATIC CONTROL

[NOTE.—To facilitate ready reference to the printed Minutes of Evidence taken before the Commission, of witnesses on behalf of the Union of Democratic Control, the headings and sub-headings (except in Part IV, Chapter 2) as used therein have been taken for the purposes of this Statement.]

In submitting this Memorandum in reply to the Statement of Evidence taken by the Commission on behalf of the Union of Democratic Control, on the 17th and 18th July, 1935, so far as it relates to the Heavy Armament Industry, The English Steel Corporation, Ltd., venture to put forward the following observations, for the consideration of the Commission:

The Statement of Evidence prepared on behalf of the Union of Democratic Control was put before the Commission by the Right Honourable Sir William Jowitt, P.C., K.C., as representative of the Union. As was to be expected from one of his eminence and standing, he frankly admitted in his opening remarks that the Union, whose representative he was before the Commission, was a Socialist body whose views might be coloured by their political and economic convictions (page 137). He further, in reply to a question by the Chairman of the Commission, stated that he was not in a position to call evidence in support of the statements which he was instructed to put in affecting the Heavy Armaments Industry (page 145, col. 1).

In these circumstances, the English Steel Corporation, Ltd., submits that it might well refrain from making any reply to the incorrect and misleading statements put forward by the Union of Democratic Control and the unjust accusations founded thereon.

The English Steel Corporation, Ltd., has, however, out of respect for the Commission, determined to submit the following short reply dealing with some of the points put forward by the Union of Democratic

Control. Unlike the Union of Democratic Control, the English Steel Corporation, Ltd., is in a position to produce evidence in support of its Memorandum, and would welcome the opportunity of doing so, should the Commission consider this necessary.

PART III.

THE FINANCIAL ASPECTS OF THE ARMAMENT INDUSTRY.

On page 169, col. 1, the Union of Democratic Control, referring to the purchase of nickel, indicates a procedure which it is suggested could be followed to inflate prices artificially and show several profits arising from the one transaction. In practice no such procedure exists.

It is also stated that the nickel rebate is concealed from the Government at the point where the nickel in its raw state is sold to E.S.C. This is not so. The matter is more fully dealt with later in this reply in the comments on nickel.

In the next paragraph reference is made to various firms which are alleged to be part of the Vickers Group, and which have a number of directors common to all, and it is stated that these directors will have fees from each concern. It may be of interest to the Commission to learn that within the Vickers Group no director or official who sits on the Boards of subsidiary or associated companies, or companies in which the Vickers Group has a controlling financial interest, is allowed to retain any of the directors' fees in respect of such appointments.

PART IV.

THE ARMAMENTS AND MUNITIONS INDUSTRY.

Chapter 1.—The Iron and Steel Industry.

(a) Geographical. (Page 171. Col. 1.)

Under this heading it is stated that apart from the coal of South Yorkshire being very suitable for steel making, Sheffield has no economic advantage in the production of high grade steels over the remainder

of the country. Proximity to suitable coal is a very important factor, as will be apparent when it is realised that in the Sheffield Works of English Steel Corporation 295,000 tons of coal are used in a year against only 55,000 tons of pig iron. The weight of steel products delivered to customers is 100,000 tons. In addition every practical manufacturer knows that staff and labour facilities are of the utmost importance and in Sheffield a large proportion of the population is by tradition and inheritance steel-minded. From the metallurgical point of view, Sheffield's scientific and technical standing in the world is unquestioned.

(b) *Technical.*

On page 172, bottom of col. 1, an example is given of the composition limits said to be used for gun tubes made from nickel chromium steel, the limits being given as follows:—

	<i>Per cent.</i>
Carbon	·36 to ·37
Silicon	·12 to ·15
Manganese	·60 to ·70
Nickel	3·5
Chromium	·25

and it is further stated that the steel would be rejected as unsuitable for gun tubes if found to be outside these limits, whereas the commercial steel would pass if say the carbon content were ·40 per cent. This is incorrect. The steel used for gun forgings is generally the same as E.S.C. Vibrac V.30, Nonbrit, or Super V.N.C.A., and the limits are necessarily just as rigid for commercial work as for armaments, owing to the highly stressed nature of the articles for which such steels are supplied. Actually commercial steels, particularly of the air hardening variety, are frequently made to even closer limits of composition than those actually stated in Service specifications.

In the next paragraph, it is said "It is seldom that an ingot is passed on to another department without being cooled to an almost atmospheric temperature." This is not correct as regards the manufacture of many grades of highly alloyed steel as the risk of defects is greatly reduced by taking an ingot hot from the mould to the re-heating furnace.

This point is of importance in considering the practicability of segregating the manufacture of armament steels as the steel melting has to be synchronised with the availability of the annealing and re-heating furnaces, and in view of the long time the ingots are in these annealing furnaces (from 24 hours to three weeks) it would be impracticable economically to deal with the whole of the output from the melting furnaces in this manner. It is essential to have an outlet for the balance of the steel melted. Private enterprise gets over this difficulty by disposing of the surplus steel in the form of commercial ingots and rolled products.

Production of Armaments.

On page 173, col. 1, it is suggested that the use of Swedish pig iron is practically confined to steels intended for armaments purposes. This is not correct as much of the Swedish pig purchased is used in commercial steels for products such as pipe moulds, electrical rotor forgings, etc. Even in armaments steels a considerable portion of the pig iron used is British.

At the foot of col. 1 comments are made regarding the effect of manganese in gun steel and though the point is not perhaps of great importance, the statements are entirely incorrect. The non-warping and non-shrinking steels containing manganese are in an entirely different category to nickel-chromium-molybdenum steels, the chief functions of manganese in the latter type being to de-oxidise the steel prior to casting, and to combine with the sulphur which is present in all steels as an impurity.

At the end of the same paragraph an example is given of the average composition of armour plate steel, but this example is obviously based on the practice of years ago and is given apparently without knowledge of modern practice.

It is also stated on this page (col. 2, para. 2), that "it is after the ingot stage that arms steel . . . passes through certain operations which definitely separate it from the commercial steels." This is not correct, as for example, the forging operations for a large alloy steel shaft and a moderate size gun tube are identical and the same precautions during heating and cooling have to be taken in both cases.

The above examples are sufficient to indicate that the Union of Democratic Control is inaccurate in its technical evidence, and particularly in its contention that armament steels are entirely different from commercial steels. In fact the use of highly alloyed steels is increasing very rapidly and, as will be shown, the same types of steel, especially nickel-chromium-molybdenum, are used for both armament and commercial purposes.

On page 174, col. 1, in referring to E.S.C. it is stated that the "lathes" (presumably more than merely lathes is meant) required for gun manufacture are unsuitable for commercial work and *vice versa*, and it is inferred that machines relatively slow and therefore more costly in operation are used in gun manufacture. This is not the case and with the exception of rifling machines which are exclusively used for guns, modern efficient machine tools are suitable for either gun or commercial work. The fact that many old machines have been replaced by modern tools is merely part of the policy of modernisation which has been carried out during the past three years and which is still in progress. The resulting economies in production costs are of course of benefit to the consumer, irrespective of whether the product is armament or commercial. The finish demanded for commercial work is quite as high as for guns, and an assurance has been given to the British Admiralty that in these machines, at present engaged on commercial work, E.S.C. retains the equipment necessary for the efficient manufacture of guns in time of national emergency.

Then in speaking of the armour plant at Cyclops (page 174, col. 2) it is stated that last year it was opened out for cleaning and overhauling on the granting of a sum of £5,000 from the Government and further that it is now maintained in working condition by a Government grant of £1,000 per annum. No grant of any kind has been made by the Government nor has any application been made by E.S.C. for such assistance. Periodic overhaul and continual maintenance is necessary to maintain the plant in suitable condition for operating should this be necessary at any time to implement the undertaking to the Admiralty that E.S.C. will maintain sufficient plant for a specified maximum output capacity.

The inaccuracies in the division of departments between those wholly engaged in armament work and those only partially employed on such work are probably of little importance but it is stated, under the heading of "Service Departments" (page 175, col. 1) that the so-called armaments departments are practically self-contained as regards services such as hydraulic and pneumatic power, gas, water, steam, etc., and that a withdrawal of armament work would involve no appreciable increase in the cost of such services. Actually the reverse is the case as the various services are for the most part common to all departments and the withdrawal of any class of work would inevitably mean a greater burden of service charges to be borne by the remaining products.

Chapter 2.—The Heavy Armaments Industry.

In this chapter considerable insistence is laid on the fact that the steel companies engaged in the manufacture of armaments are interested—either by themselves or with others—in the provision of certain essential raw materials, and particular mention is made of pig iron, nickel, silica bricks and electrodes.

Pig Iron.

The reference to the interest of the Darlington Forge Ltd., in Carnforth, is misleading, as the

percentage used of pig produced by Carnforth was almost negligible, and in any case it has not produced pig iron since a date prior to the Darlington Forge being taken over by English Steel Corporation. E.S.C. could not, therefore, be considered to be interested, and as a matter of fact it (in common with many other steel companies) purchases its requirements in the open market.

Nickel.

There are only two main sources of supply of nickel, viz.: Canada and New Caledonia. In the early days of the use of nickel, the latter deposits—which are controlled by French interests—were relatively much more important than is the case today. Nowadays for all practical purposes the International Nickel Company of Canada can be regarded as a monopolist.

When nickel was first used in steel the French were the principal suppliers. It was therefore essential to safeguard the requirements of the British steel makers, and this was the reason for the formation of the Steel Manufacturers' Nickel Syndicate which made an agreement with the French suppliers. The reason why the armaments firms are the only British members is, of course, that in the early days very little nickel was used in steel works for any purpose other than armament steels (principally armour plate). The position is very different now, and it may be of interest to know that so far as the British members of the Syndicate are concerned less than 20 per cent. of their nickel purchases are used for armament steels.

The Syndicate now exists solely in order to secure the benefits to be derived from collective buying, and a sliding scale of rebates is in operation based on the total purchases of the members. The Nickel Syndicate makes no profit, the full amount of the rebate being passed on to the individual members. The statement by the Union of Democratic Control that such rebates are concealed from the Government auditors is totally incorrect.

The evidence may have been intended to imply that a purchasing arrangement of this nature tends to inflate prices and is evidence of inefficient buying. Actually the contrary is the case, as the terms secured by the Syndicate are more favourable than can be obtained by other British producers negotiating as individual firms in the open market, and the benefit of the arrangement accrues to the Government in so far as armament products are concerned.

Silica Bricks.

It is true that English Steel Corporation holds 39,000 of the 177,500 shares in The Oughtbridge Silica Firebrick Co., Ltd., but E.S.C. has no interest in the Parkgate Iron & Steel Co., although the evidence states that their interests in this Company through Vickers give them another 19,500 shares. The Oughtbridge Company has no concern with armaments, and the bricks are used for the lining of steel furnaces irrespective of the class of steel being manufactured.

Electrodes.

Electrodes are used in certain types of electric furnaces, and in the early days this country was entirely dependent on imported electrodes. During the War, at the request of the British Government, a number of Sheffield steel manufacturers formed a company for the purpose of manufacturing electrodes, as the previous sources of supply from abroad were not available. With the increasing severity of engineering specifications the use of electrically melted steel has developed considerably and is likely to continue to do so. In these circumstances it is of the utmost importance that there should be a supply in this country of suitable electrodes.

It is only in recent years that electric steel has been used for armament purposes, and the proportion is still very small.

High Speed Steel Alloys, Ltd.

This Company was formed in 1914, at the request of the Government, on the outbreak of the War, by

a combination of 31 makers of high speed steel. At that time there was no factory in the United Kingdom producing tungsten which had up to the outbreak of hostilities been purchased entirely from Germany, and the first consideration of the Company was to manufacture tungsten metal—an essential ingredient of high speed tool steel. After the War production of tungsten, vanadium, and molybdenum was placed on the list of key industries and the post-war activities of H.S.S. Alloys, Ltd., have been gradually extended to cover these and other essential alloys. The work of this Company has been of enormous importance in developing the use of alloy steels with resulting advantages in a variety of ways, particularly to the automobile, aircraft, chemical and general engineering industries.

The shareholders are not all engaged in the manufacture of armament steels, and only a very small proportion of the products of the Company is used for this purpose.

The High Speed Steel Mining Company, to which reference has been made, exists for the purpose of mining wolfram ore for the subsequent production of tungsten.

Why such things as the manufacture of electrodes and silica bricks and the arrangements which exist for the provision of commercial alloys should be linked with the manufacture of armaments, is by no means clear, but presumably the intention was to find support for the unfounded allegations of a sinister armaments ring by showing that in certain directions of only secondary importance the makers of armament steels have points of common interest.

There would appear to be a regrettable inability to appreciate that perfectly normal and innocent commercial arrangements can be entered into by armaments manufacturers without dishonesty of purpose. Incidentally it may be pointed out that these arrangements are greatly in the national interests.

PART VIII.

THE PRACTICABILITY OF THE PROHIBITION OF THE PRIVATE MANUFACTURE AND TRADE AND THE INSTITUTION OF A STATE MONOPOLY.

No detailed technical attempt has been made to show how nationalisation could be achieved and the very real and practical difficulties have been entirely ignored.

Take, for instance, the suggested segregation of armaments steels in a state-owned steel works. On page 206, col. 2, it is stated that the differences between the production of steel for armaments and that for commercial products start from the time the raw metal is placed in the furnace, and it is later argued (page 207, col. 2) that it would be economical to separate the manufacture of armament steels from that of commercial steels. As an example of the inaccuracy of this statement it may be stated that Vibrac and Nonbrit steels (both products of E.S.C.) are used for torpedo air vessel forgings and also for certain classes of high tensile gun forgings, while their commercial uses include such things as locomotive connecting and coupling rods, mandrel bars for the Pilger process, high pressure reaction vessels, and crankshafts, axleshafts, gears and many other parts for the automobile industry.

Similarly the composition of E.S.C. bullet proof plates is the same as their super V.N.C.A. steel.

These are merely typical examples to show that there is no essential difference between many types of armament steels and those used for commercial products, and as a matter of fact the nickel-chromium-molybdenum type of steels is now used more extensively for commercial than for armaments purposes, the compositions of the steels being in very many cases identical or so similar that one could be substituted for the other. In these circumstances it will be appreciated that the development of these special steels can much more readily be carried out in a works dealing with both commercial and armament steels than could be the case if armament steels alone were being made. Not only

so, but having regard to the preponderance of commercial work it is fair to say that the technical development in these steels is in considerable measure due to their commercial applications.

On page 206, col. 2, it is stated that the segregation of armament steels should include the manufacture of castings for turbines, gun mountings, etc., and ship castings. It would be quite impossible without supplementary commercial work to provide a foundry capable of supplying these articles and maintain anything like reasonable continuity of employment. Not only would the skilled personnel frequently be idle for long periods but the cost would be anything but economical.

LOSSES DUE TO THE JOINT MANUFACTURE OF ARMAMENT AND COMMERCIAL STEELS IN PRIVATE FACTORIES.

Under the headings of technical losses and commercial losses, serious criticisms are made of the lay-out and general control of E.S.C.

It is regrettable that general statements of this kind should be put forward without evidence being produced in support of them.

1. Works layout.

Under the heading of "Works layout" it is said that the River Don—

(1) Provides a supply of cheap water. This is agreed.

(2) Is a barrier to efficient works layout and a hindrance to internal transport. This is not correct as adequate communication is obtained by means of bridges to the two departments which are on the south side of the river. In any event the comment is irrelevant as the whole of the armament steel plant is on the north side.

(3) Is in annual flood. This also is incorrect and no serious flooding has occurred for some years.

Also the statement "that E.S.C. have spent over £1,000,000 this last two years on new plant and buildings, but it has been a policy of tackling the different manufacturing units one by one without due regard being paid to the whole," is not in accordance with the facts. No responsible Board of Directors lightly embarks upon such large expenditure of shareholders' money. The suggestion may be regarded by the Commission as being of importance in that it bears on the efficiency or otherwise of the private contractor, and therefore it may be as well to state now that no new expenditure has been incurred without the Directors being satisfied that the project concerned fitted into the complete scheme of reconstruction.

2. Administration.

Steel firms do not claim that administration on armament steels is greater than on commercial steels of the same type. What they do claim is that the administration necessary for special steels, which comprises both armament and commercial steels, is greater than for low grade steels, because the special steels pass through so many and varied operations and elaborate precautionary measures are essential at all stages, resulting in costly technical control.

The deciding factor in cost of administration is the number and variety of operations and not the range of products. There is, therefore, no justification for stating that segregation of armaments steels would reduce the administrative difficulties.

Vickers Limited, being a Holding Company, has (beyond a very small expenditure on group advertising) no selling costs and, therefore, it is inaccurate to suggest that the prices charged to the Government for armament steels include any provision whatever for such selling costs.

3. Material control.

The comments under the heading of "Material control" (page 207, col. 2), are made with insufficient knowledge of the problem. There is no difficulty in a well-organised works in separating and controlling the various types of scrap and materials and there is certainly no necessity to limit the number of brands on this account. The

absurdity of remelting steel a few months old because records are expensive to maintain in an up-to-date condition will be appreciated when it is realised that the average value of steel stocks at E.S.C. is nearly £300,000 while the cost of keeping accurate and up-to-date records is only a matter of £2,000 per annum at the most.

4. Compromise in plant.

Similarly the remarks regarding "Compromise in plant" (page 207, col. 2), and the conclusions drawn therefrom show a lack of understanding of the problems confronting the manufacturer of special steels. In the first place the manufacturers of high class armament steels do not make the cheaper commercial steels, as is inferred, and consequently the comment as to the absurdity of such a procedure is entirely irrelevant.

It must be understood that as armament and general engineering steels are produced in the same steel-making plant, an advanced technique must be applied which permits the employment of the latest physical chemistry of steel reactions. Such conditions involve increased costs which the market prices of the cheaper steels could not carry. A large electrical rotor shaft is in its way as important as a large gun tube, and the steel of which these and other large and small forgings are made must obviously have the advantage of the best technique. Thus whether E.S.C. steels contain special alloys or not, they are on an entirely different plane to the millions of tons of cheaper steels which constitute the bulk of the country's steel production.

The layout of the works and the size of the melting furnaces and other plant must have regard to the varied products which have to be produced. The size and running costs of the melting furnaces could not be reduced if only armament steels were being manufactured, and indeed the Union of Democratic Control themselves suggest (page 209, col. 2) that a State-owned factory would probably be equipped with open hearth steel melting plant of approximately the size of the present E.S.C. plant. This in itself is not in accord with the statement that armament steels are burdened unduly with the cost of equipment for commercial products.

The manufacturing procedure and consequently the physical movement between departments varies for each job, and while one product may require no special heat-treatment another may require as many as three or four at different stages of manufacture. It will be appreciated, therefore, that efficient layout must have regard to concentration of operations and that the products do not lend themselves to a straight run-through on mass production lines.

This would still be the case if only armament products were being manufactured, and the fact that transporting material between certain departments involves crossing a road (page 207, col. 1) is of no moment as crossing a road is no more difficult than crossing a yard. Incidentally the Union of Democratic Control themselves say there is no reason (page 171, col. 2) why specialisation should not be carried further if desired, and presumably this means specialisation by concentration on processes or operations.

5. General Inefficiency.

It is stated that the rapidity with which works were closed down (page 208, col. 1) cost thousands of pounds, but it would be more correct to say that thousands of pounds were saved by such action. It is incorrect, however, to say that the Penistone Works were closed down overnight. The closing down process actually took over three months to complete. To turn the stocks of raw materials into ingots would obviously have been unwise having regard to the fact that the businesses for which such ingots could be used were being given up.

Specific reference is made (page 208, col. 1) to the motor car crank department and it is stated that machines were moved from Attercliffe to Grimesthorpe at a cost of not less than £15,000 and later moved to the East Machine Shop again at a cost of thousands. The first move was necessary on account of the Attercliffe Works being sold, and the cost

of the removal was £2,811, which expenditure was catered for in the selling price of the works. The subsequent transfer, which was part of the complete scheme of reconstruction, cost £1,557.

Page 208, col. 1. It is true that some years ago consideration was given to the possibility of erecting an entirely new works in a different part of the country, but the fact that the scheme was turned down is not evidence of inefficiency. On the contrary, it shows that such a line of development has not been overlooked, but has been very fully investigated.

COMMERCIAL LOSSES.

1. Capital losses.

The comments on the state of E.S.C. plant in 1932 (page 208, col. 2) are exaggerated. It is stated that charges were often composed of 25 per cent. scrap and 75 per cent. pig and that as pig iron cost double the price of scrap this is further evidence of the inefficiency of the plant. Mixtures of these proportions were exceptional and were used only for certain casts of steel for a particular purpose. As the cost of pig has been for many years past within a few shillings of the cost of scrap of similar sulphur and phosphorous content, the procedure was justified technically and economically. The furnaces were throughout the whole of their life capable of melting steel with normal proportions of pig and scrap, and in fact did so.

It is inaccurate to say that the works were in a pitiful state. It was known that parts of the works, such as the melting furnaces, required reconstructing, but this was purposely delayed until a complete scheme was prepared. Precipitate action would obviously have been unwise.

Then to say that Cyclops was in no condition to commence the manufacture of armour plate immediately is misleading. The armour plate plant at Cyclops has been maintained in working condition throughout and could always have been started up in ample time to deal with the processes for which it is retained.

Plant does become obsolete whether it be operated by the State or by private enterprise, and the fact that the situation has been effectively tackled is not evidence of inefficiency, but quite the reverse.

2. Budgeting.

It is asked (page 208, col. 2) what budgeting or planning could be carried out at E.S.C. where the annual turnover from 1930 onwards varied from £1,300,000 to £3,000,000. The answer is that annual budgeting does occur and is essential to the successful conduct of any business which depends on obtaining its fair share of trade in competitive markets. It is said that the prices charged to the Government are influenced by costs of production, which is true, but it is inferred that production costs are in turn influenced by the volume of business obtained, which is only half-true. Costing in a steel-works consists very largely of the application of overhead charges and in times of depression the practice is to charge to production only the normal rate of overheads, leaving the unabsorbed balance as a debit against profit and loss. In other words the losses due to depression in trade are borne by the shareholders and not by the customer. The contention of the Union of Democratic Control is, therefore, in this instance as in so many others, definitely incorrect, but it may be pointed out that if armament steels had been made in a State-owned works, the Government would have had to bear the burden of unabsorbed charges which have been carried by the private manufacturer and without the assistance of commercial work the amount would have been very much greater.

3. Depreciation.

Under the heading of "Depreciation" (page 208, col. 2, and page 209, col. 1), it is stated that the rate of depreciation in respect of plant for the manufacture of armament steel cannot be so high as for commercial and it is further stated that since methods of manufacture in armour plate and guns change but little, there is not the same tendency for

machines to become obsolete. Actually manufacturing methods do change as there is continual technical development in armour plate and guns just as there is on commercial work. Armament products call for great accuracy in steel analyses, control of temperature in heat-treatment and close dimensional limits in manufacture, and these factors necessitate the installation of new and up-to-date plant just as frequently as in the case of commercial products.

It is incorrect to say that armour plate plant has a much longer useful life than general machinery. For instance a commercial forging press will last just as long as an armour bending press and a commercial planing machine as long as an armour planing machine. Moreover the opportunities for recovering depreciation are less in the case of specialised plant such as is used for armour, than for general commercial plant. An instance of this is the 12,000 ton bending press at Cyclops Works. This was installed in 1914 at a cost of over £60,000 for dealing with very thick armour plate. Since that date the only ships equipped with armour necessitating the use of this press were "Hood," "Rodney" and "Nelson," and these were the only opportunities for its economical employment.

Machine tools are only a small part of the plant required. The life of individual machines, of course, varies enormously but this is equally true of all plant.

Actually depreciation is not included in production costs and the standard overall rate of $7\frac{1}{2}$ per cent. is that allowed by the Inland Revenue for Income Tax purposes.

4. Associated companies.

Under the heading of "Associated companies" (page 209, col. 1), it is said that last year the management of the machine department in E.S.C. was forced by higher authority to buy certain new lathes from Craven Brothers, although it was a well-known fact that their lathes were vastly inferior in quality and purpose to others which had been offered. This is definitely untrue. Craven Brothers have supplied only a small portion of the new machine tools which have been installed, and the lathes which were purchased from them were chosen in fair competition with other manufacturers.

Reference is also made to the reciprocal trading between E.S.C. and the Stanton Coal & Iron Company, and it is stated that this results in inefficiency in that Stanton coal has been used in certain departments where it was by no means the most suitable, because all coal had to be purchased from this source. This again is incorrect, and in fact over the last five years only 40 per cent. of the total coal requirements has been obtained from Stanton. Very great attention has been paid to the types of coal most suitable for the various items of plant and careful study and investigation over a long period of years has resulted in very complete information being available in this important matter, and Stanton coal is the most suitable for the purposes for which it is used.

5. Monopoly.

In the remarks under the heading of "Monopoly" (page 209, col. 2) details are given of the steel producing plant existing in 1929 at the time of the formation of English Steel Corporation, and comparison is made with the present-day equipment in order to show that E.S.C. would have to seek assistance at a very early stage of an abnormal demand. The comparison, given as it is in numbers of furnaces, is misleading. In the first place the five open hearth furnaces previously in existence at Penistone works are of no importance in this connection, as although they were installed primarily for the production of common shell steel they were used only for the production of tyre and axle steels, rail steel, boiler plate steel and other low grade steels. E.S.C. has given up the business in all these steels with the exception of tyres and axles, the manufacture of which was transferred to Taylor Brothers at Manchester, who have correspondingly increased their melting capacity. A comparison of the number of furnaces is obviously valueless unless the

capacities are given, and it would be no more misleading to accuse a man of having lost money by changing five separate shillings for two half-crowns.

In computing the maximum output to be derived from open hearth furnaces, it is usual to reckon 44 working weeks per year, and on this basis and excluding the Penistone furnaces which have been dealt with, the maximum capacity of the furnaces in existence in 1929 was 270,750 tons per annum. The capacity of the present furnaces is 288,000 tons per annum.

This statement of present capacity does not take into account the plant at Darlington Forge, which is capable of producing an additional 40,000 tons per annum.

The Union of Democratic Control states that the steel producing capacity of E.S.C. and Darlington Forge can amount to no more than 200,000 tons per annum (actually it is well over 300,000), yet shell steel alone demanded 1½ million tons per annum during the later part of the War. It is apparently not realised that the plant of E.S.C. would not be devoted to the production of common shell steel of the type to which the 1½ million tons referred. This would, as in the last War, be obtained largely from basic furnaces of a type totally unsuitable for producing the special armament steels which E.S.C. manufactures.

Page 210, col. 1. Other matters which have been mentioned to support the alleged inefficiency are that E.S.C. has no fuel expert in its employ and "that the maximum efficiency of any of its hydraulic pumps reaches the princely figure of 23 per cent." The truth is that all fuel research comes under the direct control of the Chief Research Chemist, and as regards the hydraulic pumps, it would appear that the information obtained by the Union of Democratic Control is incorrect. The hydraulic installation is modern and gives about 85 per cent. efficiency which is as high as can be obtained from a service of this nature; the installation challenges comparison with any similar plant.

The Union of Democratic Control puts forward such examples (page 207, col. 1) to demonstrate that inefficiencies are inherent in the system of private manufacture. It is submitted on behalf of E.S.C. that the foregoing remarks dispose of the allegations of inefficiency and other inaccurate statements put forward by the Union of Democratic Control.

During the past three years large sums of money have been expended on the reconstruction of the works. The open hearth acid steel making plant

at Vickers works has been entirely re-built and the most modern types of furnaces and appliances have been installed. The plant is admittedly the most up-to-date in the country. The electric melting furnaces are also being replaced with the very latest types of arc furnaces of considerably greater capacity.

The heavy and medium forging plants have already been partially reconstructed and further improvements are now in progress. A large 7,000-ton hydro-electric forging press has been installed and this is the fastest press of its type in the world. Four other presses are being converted to electric drive to increase their speed of operation and consequently their output capacity. In the heat-treatment department improvement has been made and modern town-gas furnaces and automatically controlled electric furnaces have been put into commission. The machine shops have been completely reconstructed and high speed modern machine tools have been installed. Similar improvements have been carried out or are in progress in the drop stamping department, rolling mills, foundry, and other departments, in pursuance of the policy of the E.S.C. to have available a works equipped with the most modern plant.

Research is of considerable importance in highly technical industries such as ours, and concurrently with the development in the works, special attention was given to this phase of the activities of E.S.C. In 1931, Sir J. J. Thomson, F.R.S., did E.S.C. the honour of officially opening the extensions to their research laboratories, which now compare favourably in scientific equipment and personnel with any similar organisation in the country.

In the programme of reconstruction the E.S.C. has never lost sight of the possible requirements of the British Government in times of emergency, and the appropriate Government Departments are fully posted in regard to potential capacity.

The segregation of armament and commercial steels is impracticable and a State-controlled armaments factory with no commercial outlet for its surplus steel, could not economically produce the Government's requirements of armament steels.

Not only so, but the plant necessary adequately to meet the national requirements in time of emergency would be such that, without an alternative commercial market, it would be impossible in normal circumstances to operate it at anything like the percentage of capacity necessary to keep together the highly trained staff and experienced workmen.

APPENDIX 11.

(See Q. 1848).

MEMORANDUM SUBMITTED BY MESSRS. VICKERS LTD.,
RELATING TO THE PLACENCIA DE LAS ARMAS COMPANY,
LIMITED.

The annexed schedules show the profits of the Placencia de las Armas Company, Limited, for the 5 years ended 31st December, 1934. They have been numbered *Appendix 4 (a) Supplementary*, and *Appendix 7 Supplementary* to accord with the numbers attached to the schedules originally submitted dealing with the Group as a whole.

With regard to the details of investments, the Placencia Company holds shares only in *Experiencias Industriales*

S.A. The particulars regarding this holding were included in Appendix 8 to Statement No. 3 enclosed with our letter dated 21st October, 1935.

During the relevant period the whole of the issued capital of The Placencia de las Armas Co., Ltd., of course, was held by Vickers-Armstrongs Limited.

We have now obtained a certificate from the managing director of the Placencia Company to the effect that during the years in question the whole of the deliveries of armaments were made to the Spanish Government directly, or indirectly through La Sociedad Española de Construcción Naval.

J. REID YOUNG.

30th January, 1936.

APPENDIX 11—*contd.*

PLACENCIA DE LAS ARMAS COMPANY LIMITED.

Appendix 4 (a), Supplementary.—STATEMENT SHOWING DECLARED AND ADJUSTED PROFITS FOR THE FIVE YEARS ENDED 31st DECEMBER, 1934, AND AN ESTIMATE OF THE PROPORTION ATTRIBUTABLE TO THE PRODUCTION OF ARMS AND MUNITIONS OF WAR.

	Amount of declared profits.	Add Adjustment of financial transactions.	Adjusted profits.	Proportion of adjusted profits attributable to	
				Commercial.	Armaments.
	£	£	£	<i>Loss.</i> £	<i>Profit.</i> £
1930	6,363	12,510	18,873	1,510	20,483
1931	1,654	4,479	6,133	1,913	8,051
1932	294	4,685	4,979	1,840	6,819
1933	702	1,217	1,919	2,660	4,579
1934	2,002	942	2,944	7,891	10,835
	£11,015	23,833	34,848	15,919	50,767

Appendix 7, Supplementary.—PARTICULARS OF AGREEMENTS WITH OTHER FIRMS ENGAGED IN THE PRODUCTION OF ARMS AND MUNITIONS OF WAR.

Date of Agreement.	Working agreement with	Duration of agreement.	Short particulars.
9th May, 1933... ..	La Sociedad Espanola de Construccion Naval.	20 years from 9th May, 1933	Division of Naval and War Office work received by La Sociedad Espanola de Con- struccion Naval from the Spanish Government.

APPENDIX 12.

(See Q. 1867.)

VALUE OF DELIVERIES OF ANTI-AIRCRAFT GUN, 1930-1934.

The value of deliveries made in the years 1930-1934, inclusive, of Vickers-Armstrongs' anti-aircraft mobile equipments for land service and ammunition therefor, was £554,738

Note.—This information relates only to the par-

ticular equipment named. In addition very considerable supplies of other types of anti-aircraft guns, mountings and ammunition were made in the period named for both the British and foreign Governments.

APPENDIX 14.

(See Q. 1889.)

VICKERS-ARMSTRONGS LIMITED.

Attached are lists enumerating foreign inquiries received, but not dealt with, during the years 1931-1935, inclusive.

During these years we have also received verbally a number of similar inquiries, and have declined to submit proposals.

Proposals were not submitted against these inquiries, the reasons in the majority of cases being:—

- (1) The inquirer was unable or unwilling to give the ultimate destination; or
- (2) We were represented in the particular country and preferred to deal with all matters through our representatives; or
- (3) Some of the inquiries were obviously for no particular destination, and the proposals appeared to be required for unsolicited submission to various countries.

NAVAL, 1931.

Reference No.	Date.	Inquirer.	Country.	Material.
C.23137	7.2.31	Okura & Company ...	Japan	Clinometers and Vickers No. 4 flat gauge.
C.24011	9.7.31	The Soley Armament Co., Limited.	?	Cartridge and cordite

MILITARY, 1931.

Reference No.	Date.	Inquirer.	Country.	Material.
C.23134	28.1.31	Conte G. E. Elia ...	?	Heavy guns for coast defence.
C.23353	11.3.31	F. Fecher ...	?	Machine guns
C.23505	29.4.31	Lionel Dektereff & Co.	?	Tractors and trailers for transport of artillery.
C.23638	4.5.31	Cie Française de Marine et de Commerce.	?	Armoured cars, etc.
C.23639	9.4.31	Messrs. Grote & Co. ...	Greece	Tractors
C.23994	6.7.31	Bennath Machine Tools ...	Mexico	7 mm. air-cooled machine guns.
C.24001	5.7.31	Messrs. Uniunea Technica Romana, per L. Ferney.	Roumania	Tanks
C.24251	13.6.31	H. Muller ...	?	Spare parts for field guns
C.24326	9.9.31	Moritz Magnus ...	China	Vickers' Class "E" and Berthier observers' guns, 7.92 mm.
C.24327	9.9.31	L. Rondon & Co., Limited.	China	Vickers' Berthier observers' guns, 7.92 mm. and 8 mm.
C.24352	17.9.31	Max Johnsen & Co., A. B.	?	Armoured cars
C.24819	10.12.31	Brown & Taws ...	? Finland	76 mm. shells

NAVAL, 1932.

Reference No.	Date.	Inquirer.	Country.	Material.
C.24938	14.1.32	Oswald Flam ...	?	Guns for two small war vessels.
C.24949	16.1.32	Anderson Meyer & Co. ...	China	Fire control equipment for a Chinese cruiser
C.24950	16.1.32	James Pitkin & Co. ...	?	Fire control for 3 in. A.A. gun.
C.24979	22.1.32	Oswald Flam ...	Brazil	Armament for training ship.
C.25098	15.2.32	Angelini & Bernardon	Persia	Armament and ammunition.
C.25453	3.5.32	E. J. Smyth ...	?	303 in. machine guns
C.25608	5.6.32	Carlowitz & Co. ...	?	Ballistic instruments, fire control gear.
C.26636	23.11.32	R. Berends ...	?	Mines and torpedoes

APPENDIX 14—*contd.*

MILITARY, 1932.

Reference No.	Date.	Inquirer.	Country.	Material.
C.24903	4.1.32	Far East Avtn. Co. ...	China	Land and Amphibious Tanks.
C.24924	11.1.32	Lincoln Smith ...	?	Field guns.
C.24970	22.1.32	R. B. Rodda & Co. ...	India	Pedersen rifle.
C.25012	28.1.32	Ames Bayard ...	?	Machine guns.
C.25136	24.2.32	D. Tyer ...	Greece	Steel helmets
C.25173	3.3.32	Kurt Nekolny per Marconi's Wireless Tele. Co.	Roumania	Vickers - Carden - Loyd Mark VI armoured vehicles.
C.25237	16.3.32	Export Consolidated Co. ...	South America.	Machine guns, rifles and ammunition.
C.25259	21.3.32	Le Personne ...	China & Japan.	·303 in. Colt machine guns.
C.25310	5.4.32	Sir Henry White Smith ...	?	Artillery instruments.
C.25371	18.4.32	C. Siegel ...	Estonia	Tanks.
C.25384	20.4.32	Hobbies Limited ...	Japan	"Claw" bomb release slips.
C.25395	23.4.32	Nieuport Astra ...	?	Machine guns.
C.25465	5.5.32	Bessler Waechter ...	S. America	Tanks.
C.25615	7.6.32	C. W. Jacob ...	?	Field howitzer, 500 rds. ammunition.
C.25781	4.7.32	E. B. Rivlin ...	Russia	Infantry and artillery directors.
C.25898	21.7.32	G. S. Ippa ...	Lithuania	Bomb carriers.
C.25932	28.7.32	E. Singer ...	?	Manser rifles and machine guns.
C.25979	11.8.32	G. E. Hudson ...	Siam	Vickers-Carden-Loyd Amphibious Tanks.
C.25989	13.8.32	Vosper & Co. Limited ...	?	Universal Bomb Carriers with "Claw" release slips.
C.26107	6.9.32	Bruno Meyer ...	?	Rifles, machine guns and tanks.
C.26118	8.9.32	Francis Mezquita ...	Yugo-Slavia	Spares for 7·9 Maxim machine gun body.
C.26167	19.9.32	Steirische Gustahlwerke A. G.	Bulgaria	Armour plate
C.26318	29.9.32	Export Consolidated Company.	Cuba	Vickers and Lewis machine guns.
C.26351	5.10.32	R. L. Routley, Gunner ...	Portugal	Armoured motor cycles, machine guns and trench mortars.
C.26352	6.10.32	Carl Arbeit ...	?	7·9 mm. carbines.
C.26355	6.10.32	Wilhelm Rump ...	?	Cemented steel plates
C.26357	6.10.32	J. Van Hauten ...	Estonia	Light tanks
C.26373	8.10.32	Winchester Repeating Arms Co.	?	·5 in. ammunition
C.26378	8.10.32	D. C. Hudspeth ...	?	Guns and rifles
C.26402	12.10.32	R. J. Adgey ...	?	·303 in. land service machine guns and tripods.
C.26433	18.10.32	The Borneo Co. ...	Siam	Tanks
C.26434	18.10.32	Le Personne ...	Portugal	V. B. machine guns
C.26446	19.10.32	Gebhard & Co. ...	Roumania	Tanks
C.26486	27.10.32	E. Le Bas & Co. ...	China	Arms and ammunition
C.26552	9.11.32	Karl Srba ...	?	Machine guns and field equipments.
C.26585	17.11.32	E. Eldridge ...	Spain	Tanks
C.26593	18.11.32	R. K. Suez ...	?	Armoured fighting vehicles
C.26620	23.11.32	Bessler Waechter ...	Brazil	Steel shell cases
C.26635	24.11.32	George Kirsch ...	?	Rifle ammunition
C.26698	12.12.32	Usines Metallurgiques de Hainout.	?	Fuses and cartridge cases for Krupp and Schneider guns.
C.26794	28.12.32	Eng. S.S. Solkachev ...	Russia	Repairs of cars and tractors.
C.26803	31.12.32	Le Personne ...	Portugal	Spare parts for Vickers ·303 in. machine guns.

NAVAL, 1933.

Reference No.	Date.	Inquirer.	Country.	Material.
C.26974	27.1.33	Wladyslaw Zakrzeuski ...	?	Submarine parts.
C.27076	8.2.33	Benny Spiro ...	China	4·7 in. ammunition.
C.28324	18.9.33	Schneider Afsa, Ltd. ...	Estonia	Machine guns for submarines.
C.28331	1.9.33	A. Pollock & Co. ...	Siam	Electrical accessories for gunboat.
C.28804	12.12.33	Ateliers & Chantiers de Bretagne.	Estonia	A.A. machine guns, 20 mm. (2) cartridges, 1,500 per gun.
C.28821	11.12.33	Miechielsen & Spuson ...	?	Cruisers or destroyers (2).
C.28829	15.12.33	Berrick Bros., Ltd. ...	Egypt	Gunboats (2).

APPENDIX 14—*contd.*

MILITARY, 1933.

Reference No.	Date.	Inquirer.	Country.	Material.
C.26997	4.2.33	White, Child & Beney Ltd.	Poland	Machine gun belts.
C.27005	14.1.33	F. Florian	?	Rifles, guns, tanks and ammunition.
C.27036	9.2.33	Dutch Explosive Works	Holland	Spare barrels for .303 in. standard rifles.
C.27081	18.2.33	Gavin Lawson	?	Coastal artillery and A.A. equipments.
C.27157	2.3.33	D. Jordan	Turkey	Tanks, machine gun carriers, tractors.
C.27166	6.3.33	Russell Godwin-Smith	?	Various armaments.
C.27255	13.3.33	International Ordnance & Munition Co.	?	Various war material.
C.27289	16.3.33	R.K.W. Suez	China	H.A. guns.
C.27399	14.4.33	Central Stores (Cardiff), Ltd.	China, Japan & Roumania	Machine guns.
C.27490	26.4.33	Is. M. Asseo	Turkey	Steel for gun barrels.
C.27498	1.5.33	J. M. Taylor	?	Whippet tanks
C.27531	10.5.33	E. L. Morcom	?	A.A. mountings for machine guns.
C.27570	11.5.33	J. Strutt	?	Machine guns, ammunition, gas masks and gas bombs.
C.27598	15.5.33	Anglo-Lithuanian Trading Company.	Lithuania	Light Army tanks.
C.27721	8.6.33	Artillery Transport Co. ...	Portugal	Assault cars.
C.28061	25.7.33	Society of Motor Mfrs. & Traders Ltd.	Lithuania	Armoured automobiles.
C.28128	3.7.33	Chua Siong Pek	China	Various armaments.
C.28241	25.8.33	Miranda Bros. Inc.	?	Technical information on artillery and munitions.
C.28323	18.9.33	W. McKay	Latvia	Armaments, various.
C.28360	19.9.33	Armas y Accesorios de Tiro y Caza S.A.	?	Machine guns.
C.28395	26.9.33	Peter Birkman	Latvia	Fuses.
C.28440	15.9.33	Shewan Tomes & Co., per Norsk Sprae Ngstof W. & Kallevig.	China	Aerial bombs.
C.28453	9.10.33	Pittevil & Company	Lithuania	Tanks.
C.28551	24.10.33	Bangkok Dock Ltd., per Stephenson Brown.	Siam	75 mm., 105 mm. and 150 mm. equipments.
C.28581	25.10.33	A. R. Nierich	Lithuania	Armoured cars.
C.28629	8.11.33	G. Frank	Ecuador	Machine gun sights.
C.28746	1.12.33	S. A. Morrison	?	Tanks and armoured cars.
C.28797	8.12.33	Toka G.M.B.H.	?	Vickers' machine gun, 25.4 mm.
C.28874	23.12.33	R. Bazaj	?	Enfield rifles, 4,000.

NAVAL 1934.

Reference No.	Date.	Inquirer.	Country.	Material.
C.29366	27.3.34	Albert de France	China	Submarine Mines
C.29414	6.4.34	Albert de France	?	Submarines
C.29924	12.6.34	G. A. Mosettig	Yugoslavia	Bomb Sight and bombing Teacher.
C.16a	1.6.34	Mr. Bettenstadt	?	Siege Guns 100 mm. and A.A. guns.
C.728a	2.11.34	Dias de Carvalho	Portugal	Shooting Teacher

MILITARY 1934.

Reference No.	Date.	Inquirer.	Country.	Material.
C.28960	11.1.34	Jean Mauve	China	Vickers machine guns 7.92.
C.28996	13.1.34	Leng Roberts & Co.	Paraguay	Machine gun spares
C.29038	26.1.34	Shorney & Cornel	Lithuania	Tractors
C.29045	30.1.34	C. Lavy & Son	Portugal	Armoured cars
C.29066	26.1.34	J. Wimmer & Co.	Portugal	Alti-Telemeters
C.29096	2.2.34	"Motomk"	Portugal	Vehicles for military purposes.
C.29210	26.2.34	Geo. Garratt & Co.	Siam	Tractors
C.29266	8.3.34	Becker & Achilles	?	Ammunition, machine gun and artillery.
C.29279	26.1.34	Capt. Deane	Paraguay	"Bolivian" equipments, spare parts for.
C.29384	3.4.34	Anchor Trading Corp'n. ...	Portugal	War material
C.29394	27.3.34	International Ordnance and Instrument Co. ...	?	Tanks

MILITARY, 1933—continued.

Reference No.	Date.	Inquirer.	Country.	Material.
C.29443	11.4.34	The London and International Trading Co. ...	Roumania	War material
C.29516	18.4.34	M. Clemenceau ...	Portugal	Pedersen automatic rifles, etc.
C.29570	23.4.34	Ing. Com. N. Al. Anguelov.	Bulgaria	Machine guns class "F"
C.29655	5.5.34	Messrs. Korpivaara and Halla.	Finland	Tractors
C.29759	19.5.34	Satvet Lutfi ...	Turkey	Locks for Vickers machine guns.
C.29868	7.6.34	R. Bazaj ...	Nepal	Machine guns
C.29869	11.6.34	H. Lotery ...	Greece	Armament material
C.29897	14.6.34	Messrs. Richmonds ...	China	A.P. bombs and A.A. equipments.
C.29979	27.6.34	Siam Architects ...	Siam	Armoured cars
C.29987	24.6.34	Hans Franc Ve Seriki ...	Turkey	Tractors
4a	28.6.34	Richman Symes & Co.	Iraq	Ammunition
5a	28.6.34	J. B. Inge ...	Greece	War material
150a	21.7.34	London Armoury Co. ...	?	Belts for machine guns
159a	17.7.34	W. F. Vaughan Scott ...	Turkey	Shells, 50,000
345a	15.8.34	Stook & Mountain ...	Turkey	Aiming plates with compass mounted on tripod.
380a	30.8.34	J. Palmer Jnr. & Co. ...	China	Arms and ammunition
388a	31.8.34	R. F. Sedgley Pilley & Reddy.	?	Machine guns and heavier armament.
389a	30.8.34	E. Hoffmann ...	Austria	Tanks light infantry
416a	7.9.34	L. G. Evens ...	?	Machine guns
417a	5.9.34	George Frank ...	Dominican Republic.	Vehicles, V.C.L. Mark VI* Armoured.
609a	13.10.34	Straussler Mech. ...	?	Guns 37 mm. Q.F.
667a	22.10.34	Messrs. Jepsen ...	?	Tractors heavy
673a	22.10.34	Messrs. Porm & Co. ...	?	Accessories for machine guns.
760a	8.11.34	General Motors Near East S/A.	?	Bodies, armoured
956a	10.12.34	Edgard Grimard ...	China	12.7 mm. machine guns
942a	10.12.34	Wessex Aircraft Company.	?	Metal parts for practice bombs.

NAVAL, 1935.

Reference No.	Date.	Inquirer.	Country.	Material.
C.1124a	14.1.35	Cantiere Ruiniti ...	Siam	Destroyer armament
C.1757a	26.4.35	Thompson & Arnell ...	?	Secondhand submarines
C.1758a	25.4.35	T. W. Tamplin & Co. ...	Turkey	30 submarines
C.2287a	27.6.35	Akt. Landeholmen Motals, Sweden.	Finland	Licence for paravanes

MILITARY, 1935.

Reference No.	Date.	Inquirer.	Country.	Material.
C.1150a	13.1.35	Ahmet Bey (W. Cramel) ...	Turkey	Tractors.
C.1359a	28.2.35	H. F. L. Penard ...	S. America	Caterpillar vehicles.
C.1364a	6.3.35	Signor Frainani ...	Bolivia	Aeroplane bombs.
C.1415a	4.3.35	C. Santos Ltd., per Joseph Lucas Ltd., Portugal.	Portugal	Sound locators and A.A. equipments.
C.1512a	25.3.35	Anglo-Overseas Engrs. & Merchants Ltd.	China	Tanks.
C.1887a	16.5.35	International Ord. & Instrument Co.	Turkey	Ammunition for 75 mm. A.A. equipments.
C.1977a	23.5.35	F. L. Fink ...	Persia	Armament.

APPENDIX 14—*contd.*MILITARY, 1935—*contd.*

Reference No.	Date.	Inquirer.	Country.	Material.
C.2079A	29.5.35	Mr. A. A. Belz	Greater Antilles.	Armoured cars, &c.
C.2345A	17.7.35	Ing. E. Mittli	Austria	A.A. equipments. Information.
C.2346A	9.7.35	Adolf Heise	Austria	Tanks and gun equipments.
C.2445A	25.7.35	Daug's & Cie.	Paraguay	Parts for equipments, 65, 75 and 105 mm.
C.2895A	27.9.35	V. Petrovitch... ..	Yugoslavia	Armament.
C.3174A	29.10.35	Pimental & Casquilho ...	Portugal	Spot light for rifle.
C.3309A	20.11.35	P. H. Pritchard	Siam	Caterpillar tractors.
C.3521A	20.10.35	A. Hindi & Co.	?	Ammunition.
C.1088A	10.1.35	S. Mahmoud	Turkey	Tanks.
C.1199A	29.1.35	Associated British M/c. Tool Makers.	?	Protective shields.
C.1274A	14.2.35	R. W. Eaton & Co.	?	Light tanks.
C.1519A	21.3.35	Leo David	Estonia	Armour plates.
C.1526A	27.3.35	Carlsles Ltd.	Uruguay	Armoured cars.
C.1632A	4.4.35	Mr. Lewis T. Wilkie	Colombia	A.A. guns.
C.1635A	9.4.35	Keymer & Sons	?	Tractors.
C.1913A	14.5.35	Felipe Comabella	?	Machine gun mountings.
C.2029A	27.5.35	A. A. Belz	?	Armoured cars and tanks.
C.2072A	4.6.35	F. Bower & Co.	Salvador	Rifle, ammunition, &c.
C.2084A	7.6.35	Captain W. Holderegger ...	Switzerland	Artillery and A.A. information.
C.2110A	25.5.35	Ometerio-Sotomayer	Dominica	Various armament.
C.2164A	22.6.35	Steirische Gustahlwerke A.G.	Greece	Shell.
C.2192A	17.6.35	J. Caldwell	?	Machine guns.
C.2206A	28.6.35	H. B. Perry & Co.... ..	Brazil	Armoured cars.
C.2223A	2.7.35	Ing. K. H. Weil	?	Bombing teacher.
C.2313A	12.7.35	A. Young Ltd.	Hongkong	B.P. plates.
C.2424A	24.7.35	P. Boschsler... ..	Switzerland	15 cm. guns.
C.2425A	21.7.35	Raab. Flugzeugbau	Austria	Aircraft armament.
C.2811A	17.9.35	H. Whitworth Ltd.	Turkey	Telescopes.
C.2931A	3.10.35	G. A. Hacham	Lithuania	Tanks.
C.2932A	4.10.35	W. R. Loxley... ..	?	Arms and ammunition.
C.2970A	7.10.35	Aerometall Akt.	Spain and Greece.	Machine guns.
C.2993A	11.10.35	Pimental & Casquilho ...	Portugal	Directors.
C.3074A	22.10.35	Mr. Khouw Ke Hien	D.E. Indies & China.	Aircraft armament.
C.3260A	12.11.35	Ing. E. Moser	Switzerland	Military vehicles.
C.3307A	21.11.35	M. Keller per de Mestral.	?	Catalogues, &c., of machine guns. Prices later.
C.3379A	29.11.35	Fulton Bros. & Co.	Turkey	A.A. equipments.
C.3415A	12.12.35	Enrique Arambulo	Ecuador	A.A. equipments.

APPENDIX 15.

(See QQ. 1918-1922.)

STATEMENTS SHOWING QUANTITIES OF ARMS, ETC., EXPORTED TO JAPAN, BOLIVIA, PARAGUAY, COLOMBIA, PERU AND ITALY DURING CERTAIN PERIODS, AND THE NUMBER OF RELATIVE EXPORT LICENCES.

JAPAN.

Value of deliveries from September, 1931, to April, 1933 £2419,906

comprising the following supplies:—

420 R.C. equipments and parts

6 Mark VI tanks and spares.

7,411,000 rounds of R.C. ammunition.

24 5-in. equipments and parts.

60,000 rounds of 5-in. ammunition.

18 40 mm. equipments.

104,000 rounds 40 mm. ammunition.

1 predictor.

1 set torpedo control gear.

1 clinometer.

128 Scarff rings.

40 tons bullet proof plates.

2 Bygrave bombing teachers.

50 submarine mines.

2 depth charge throwers and 4 carriers.

No. of export licences obtained to cover these deliveries 41

The contracts for these supplies were obtained between 28th January, 1930, and 16th March, 1933.

APPENDIX 15—*contd.*

BOLIVIA.

Value of deliveries from July, 1932, to December 1934 £425,158
comprising the following supplies:—

Material.

	<i>Supplied under Contract dated</i>
11 105 mm. mountain equipments ...	
7 105 mm. field equipments ...	
24 75 mm. infantry equipments ...	1.4.27
29 65 mm. infantry equipments ...	
7,886 rounds 105 mm. ammunition...	
7,250 rounds 65 mm. ammunition ...	
8 R.C. equipments ...	19.3.32
100,000 rounds R.C. ammunition ...	10.8.32
1,900,000 rounds R.C. ammunition...	25.8.32
3 6-ton tanks ...	26.11.32
4,000 rounds 47 mm. ammunition ...	
9,000 rounds 75 mm. ammunition...	10.12.32
Spare for Vickers-Berthier equip- ments and 75 mm. mountain equip- ments, and sundry supplies ...	8.6.33
Spare for 6-ton tanks ...	8.8.33
100 spare barrels for R.C. guns ...	6.10.33
60 recuperator packings ...	6.1.34
30 recuperator pistons ...	18.1.34
5,000 primers ...	4.4.34
100 R.C. equipments with spares, etc. ...	13.3.34
Spare for R.C. equipments...	17.4.34
2,600 rounds 75 mm. ammunition ...	30.4.34
500 celluloid protractors ...	9.8.34
No. of export licences obtained to cover these deliveries	27

PARAGUAY.

Value of deliveries from July, 1932, to
December, 1934 £79
comprising:—
50 37 mm. belts.

No. of export licences obtained to cover these
deliveries 1

The contract for these belts was entered into on
18th January, 1932.

COLOMBIA.

Value of deliveries from December, 1932,
to July, 1934 £697,695

comprising:—

2 destroyers.

These destroyers were released to us by the
Portuguese Government and sold by us to the
Colombian Government. They were handed over in
Lisbon.

The contract for these destroyers was entered into
on the 12th February, 1934, and they were handed
over as follows:—

First destroyer	23.2.34
Second destroyer	16.5.34

PERU.

Value of deliveries from December, 1932,
to July, 1934 £51,539

comprising the following supplies:—

2 Vickers-Bygrave bombing teachers.

Spare for Vickers-Carden-Loyd light armoured
vehicles.

6,700 cordite charges.

43 6-in. practice shot.

2,200 rounds 3-in. ammunition, and 45 additional
cases.

8,000 rounds 37 mm. ammunition.

300 aircraft bombs.

No. of export licences obtained to cover
these deliveries 8

The contracts for these supplies were obtained
between 14th March, 1933, and 24th October, 1933.

ITALY.

Value of deliveries from September, 1934, to
June, 1935 Nil

APPENDIX 16.

MEMORANDUM RE SHARE CAPITAL OF VICKERS LIMITED.

[See Qs. 1930-1942 and Q. 2539 *et seq.*]

The Company was incorporated on the 17th April,
1867, with an Ordinary Share Capital of £155,000.

From the year 1867 onwards the capital has been
increased from time to time, and at the 31st Decem-
ber, 1924, the issued capital was £20,679,290, repre-
sented as follows:—

	£
(a) Ordinary Shares of £1 each ...	12,315,483
(b) Five per cent. Preferred Stock ...	750,000
(c) Five per cent. Preference Shares of £1 each	750,000
(d) Five per cent. Cumulative Prefer- ence Shares of £1 each (tax free up to 6s. in £)	6,863,807
	<u>£20,679,290</u>

By a Special Resolution of the Company passed
17th December, 1925, confirmed 5th January, 1926,
and confirmed by the Court on the 26th January,
1926, the issued ordinary share capital was reduced
by £8,210,322 by writing down the shares from £1
each to 6s. 8d. each, leaving the present issued share
capital:—

	£
(a) Ordinary Shares of £1 each ...	4,105,161
(b) Five per cent. Preferred Stock ...	750,000
(c) Five per cent. Preference Shares	750,000
(d) Five per cent. Cumulative Prefer- ence Shares of £1 each (tax free up to 6s. in £)	6,863,807
	<u>£12,468,968</u>

APPENDIX 16—*continued*.

Summarised, the Share Capital of the Company has been issued as follows :—

	£	£
(a) <i>For Consideration other than Cash.</i> —		
(1) Purchase of Assets and Goodwill of Naylor Vickers & Co.	150,000	
(2) Purchase of Assets and Goodwill of Maxin Nordenfelt Guns & Ammunition Co., Ltd.	933,334	
(3) In exchange for shares of Wm. Beardmore & Co., Ltd.	389,500	
(4) Purchase of Interests in Metropolitan Carriage & Wagon Co., Ltd., and W. T. Glover & Co., Ltd.	7,927,702	
		9,400,536
(b) <i>For Cash</i>		8,883,754
(c) <i>As Bonus</i> —		
(1) Issued out of Profits	254,558	
(2) Issued out of Premium on Shares of various issues... ..	1,100,000	
(3) Issued on increased valuation of Goodwill	950,000	
(4) Issued on Revaluation of Sheffield Works	90,442	
		2,395,000
		20,679,290
<i>Less :</i>		
Written off Ordinary Share Capital under Capital Reduction Scheme		8,210,322
Present Issued Share Capital		£12,468,968

Full details of the above are shown in the following statement :—

APPENDIX 16—continued.

STATEMENT SHOWING AUTHORISED AND ISSUED SHARE CAPITAL AND MANNER BY WHICH IT HAS BEEN INCREASED SINCE INCORPORATION OF COMPANY IN 1867.

Year.	Capital Issued.				How Issued.			Total.	As Bonus.	Total.	
	Ordinary Shares.	5 per cent. Preferred Stock.	5 per cent. Preference Shares.	5 per cent. Cumulative Preference Shares.	Total.	For consideration other than cash.	For Cash.				
	£	£	£	£	£	£	£	£	£	£	
1867	155,000	—	—	—	155,000	(A) 150,000	5,000	155,000	—	155,000	(1) Issued out of Profits 264,558
1871	186,000	—	—	—	186,000	—	31,000	186,000	(1) 155,000	90,442	Other Sources ...
										£155,000	
1872	19,000	—	—	—	19,000	—	19,000	19,000	—	19,000	(2) Issued out of Profits 2140,000
1878	140,000	—	—	—	140,000	—	—	140,000	(2) 140,000	140,000	
1881	250,000	—	—	—	250,000	—	—	250,000	(3) 250,000	250,000	(3) Issued out of Profits 550,000
											Other Sources ...
											200,000
1887	750,000	—	—	—	750,000	—	—	750,000	(4) 750,000	750,000	(4) Issued out of other Sources ...
											£750,000
	750,000 (Ordinary Shares converted into 5 per cent. Preferred Stock.)	750,000	—	—	—	—	—	—	—	—	
1888	250,000	—	750,000	—	1,000,000	(B) 933,334	66,666	1,000,000	—	1,000,000	
1889	500,000	—	—	—	500,000	—	500,000	500,000	—	500,000	
1900	500,000	—	—	—	500,000	—	500,000	500,000	—	500,000	
1901	1,300,000	—	—	—	1,300,000	—	200,000	1,300,000	(5) 1,100,000	1,300,000	(5) Issued out of other Sources ...
											£1,100,000
1902	389,500	—	—	—	389,500	(C) 389,500	—	389,500	—	389,500	
1905	10,500	—	—	—	10,500	—	10,500	10,500	—	10,500	
1913	740,000	—	—	—	740,000	—	740,000	740,000	—	740,000	
1914	1,110,000	—	—	—	1,110,000	—	1,110,000	1,110,000	—	1,110,000	
1918	1,850,000	—	—	—	1,850,000	—	1,850,000	1,850,000	—	1,850,000	
1919	4,915,483	—	—	6,863,807	11,779,290	(D) 7,927,702	3,851,588	11,779,290	—	11,779,290	
	12,315,483	750,000	750,000	6,863,807	20,679,290	9,400,536	8,883,754	20,679,290	42,395,000	20,679,290	

APPENDIX 17.

(See Q. 2189.)

TOTAL STRENGTH OF PERMANENT AGENTS ABROAD.

The total strength of the armament agents of Vickers-Armstrongs Limited, Vickers (Aviation) Limited, The Supermarine Aviation Works (Vickers) Limited and The Whitehead Torpedo Co., Limited at 1st January 1936 was	40
Details are given hereunder:—	
Agents of Vickers-Armstrongs Limited	35
Agents of Vickers (Aviation) Limited and The Supermarine Aviation Works (Vickers) Limited	5
	40

Note.—Of the agents of Vickers-Armstrongs Limited:—

29 act also for Vickers (Aviation) Limited and The Supermarine Aviation Works (Vickers) Limited.

14 act also for The Whitehead Torpedo Co., Limited.

APPENDIX 18.

(See Q. 2239.)

STATEMENT SHOWING NUMBERS OF SKILLED, SEMI-SKILLED AND UNSKILLED PERSONS EMPLOYED IN CERTAIN WORKS.

Vickers House,
Broadway, Westminster,
London, S.W.1.
13th January, 1936.

or 50 Draughtsmen and Designers employed in slack times. The numbers shown on the enclosed statement will let you see what this problem means to a firm of our size.

I enclose a further statement showing what we are doing to try to meet the shortage of skilled men. Of course, it would have been quite impossible for us to have so many apprentices under training, without the high-class commercial work which we have undertaken during the years when Warship and Armament orders were scarce.

The apprentice draughtsmen are selected from the best boys who have done three years of training in the shops, at the end of which period an examination is held and the successful candidates pass into the Drawing Office for the final two years of their apprenticeship.

I remember that when Sir Eustace D'Eyncourt was giving evidence, Sir Kenneth Lee particularly asked for information about the necessity of skilled men to-day compared with many years ago. I think the members of the Commission can rest assured that we should not employ skilled men, especially to-day when there is a serious shortage of them, unless we were obliged to do so and therefore the return I have sent you will provide a reliable answer to Sir Kenneth Lee's question.

I have the honour to be, Sir,

Your obedient Servant,

C. W. CRAVEN.

The Secretary,
The Royal Commission on the Private
Manufacture of and Trading in Arms,
8, Buckingham Gate,
S.W.1.

Sir,

I enclose herewith a list showing the various types of labour employed by the Company. You will notice that it is for the week ending 7th December, 1935, and therefore the total figure does not agree with the figure I gave to the Royal Commission in my evidence.

I should like to explain that the skilled men are or can be members of the Craft Unions. The semi-skilled men are principally those working machines and in certain districts it is possible for a man who has worked a heavy machine as a semi-skilled man to be graded up and later brought into the list of skilled men. By staff we mean everyone who is on an "upstanding" wage, that is, not a day to day engagement.

I also enclose particulars of our Drawing Office Staff. I think Admiral Bacon in his evidence, referred to the difficulty he found in keeping his 40

NUMBER OF EMPLOYEES.
(Week ending 7.12.35.)

	Skilled.	Semi-skilled.	Unskilled.	All Staff.	Total.
Barrow	5,043	2,185	1,994	1,707	10,929
Elswick	2,104	2,596	844	1,252	6,796
Naval Yard	899	231	236	161	1,527
Crayford... ..	1,530	636	447	608	3,221
Dartford... ..	500	670	939	183	2,292
Whitehead	560	188	55	94	897
E.S.C. Sheffield	1,683	2,199	2,165	957	7,004
Openshaw	320	218	231	79	848
TOTAL	12,639	8,923	6,911	5,041	33,514

DRAWING OFFICE STAFF.
(Week ending 7.12.35.)

	Draughtsmen.	Apprentice Draughtsmen.	Tracers.	Drawing Office Clerks, etc.	Total.
Barrow	442	57	121	92	712
Elswick	205	17	67	72	361
Naval Yard	28	5	15	3	51
Crayford... ..	170	28	41	45	284
Dartford... ..	17	6	2	2	27
Whitehead	24	2	6	3	35
E.S.C. Sheffield	35	5	5	5	50
Openshaw	4	2	—	—	6
TOTAL	925	122	267	222	1,526

APPENDIX 18—*contd.*APPRENTICES.
(Week ending 7.12.35.)

	Trade Apprentices.	Boy Machinists.	Apprentice Draughtsmen.	Total.
Barrow	1,116	202	57	1,375
Elswick	291	364	17	672
Naval Yard	215	2	5	222
Crayford	258	155	28	441
Dartford	18	275	6	299
Whitehead	58	24	2	84
E.S.C. Sheffield	92	Machinists 212 Others 398	5	707
Openshaw	29	Machinists 146 Others 121	2	298
TOTAL	2,077	1,899	122	4,098

APPENDIX 19.

[See Q. 2300.]

The documents submitted by Sir Charles Craven, in so far as they were not read in the course of the Hearing, were as follow:—

1. MESSRS. VICKERS SONS & MAXIM TO ADMIRALTY.
Strictly confidential.

The Secretary of the Admiralty,
Admiralty, Whitehall, S.W.

27th October, 1900.

Sir,

[See Q. 2304.]

(a) *Speed on the surface and radius of action with oil motor.*

8 knots in fine weather; 7 knots in ordinary weather. The radius of action with oil motor depends on the amount of gasoline carried, and the quality of the gasoline, but in the ordinary way the boat should be capable of covering about 250 knots at full speed. At a lower speed the radius of action will be greatly increased, depending on the wind, weather and other general circumstances. We will submit to a penalty of £1,000 per every knot below 7 knots not attained when submerged.

(b) *Speed when submerged and radius of action with accumulators.*

7 knots. Radius of action 25 knots. We will guarantee full speed for 25 knots.

(c) *Distance that the vessel can go submerged and time for which she can remain closed up without inconvenience to the crew.*

Distance submerged 15 knots. Time closed up 3 hours.

(d) *Limits within which course and depth can be maintained.*

Official trials in America have shown that she will steer absolutely correct if properly directed, but naturally the steering depends on currents and personal considerations. She will, in the ordinary way, steer quite as well submerged as any boat on the surface.

Limit of depth, average 2 feet, maximum 4 feet.

(e) *Time required to pass from working on the surface with oil motor to the submerged condition.*

This will take from 2 to 10 minutes according to the skill of the crew.

(f) *Depth to which the vessel can be safely submerged.*

100 feet. In regard to these guaranteed conditions, as above, we beg to say that the official guarantees by the Holland Torpedo Boat Company in America were considerably exceeded at the official trials, and we have every reason to believe that better results than those we have mentioned will be obtained.

In regard to paragraph 7 of your letter, we note the conditions enumerated therein, and we fully understand that our rights of design, patents, etc., will be respected during the terms the patents or any improvements thereon are in force.

We enclose herewith a list of patents in force or pending owned by the Holland Torpedo Boat Company which may be of interest in showing the large amount of experimental work which the American Company have had to carry out during the development of this boat.

We have the honour to be, Sir,

Your obedient Servants,

VICKERS SONS & MAXIM LIMITED.

[ENCLOSURE.]

27th October, 1900.

Strictly confidential.

Holland Torpedo Boat Company.

List of Patents in Force or Pending.

1. Letters Patent No. 522,177.

General design of submarine torpedo boat.
In force only in the United States.

2. Letters Patent No. 492,960.

Steering apparatus for submarine vessels.
In force only in the United States.

3. Letters Patent No. 472,670. U.S.

Submergible torpedo boat. "Submerger."
A surface torpedo boat that submerges its hull in action, depending for buoyancy on its exposed armoured turret. In force in the U.S. Great Britain No. 7941/92 and Belgium No. 99,307 of 1892.

4. Letters Patent No. 537,113. U.S.

Automatic compensation for weights exposed. (Submergible boat.)

In force in the United States, Great Britain No. 7247/1895, Germany 85600, Germany Division 86352, Sweden 7051 of 1895, Sweden Division 7053 of 1895, Belgium 115,012 of 1895, Italy Vol. 30/75 No. 38631/430 of 1895.

Applications Pending.

5. Arrangement for water ballast tanks to ensure most suitable trim for surface and for submerged running.

New application in all maritime countries.

6. Means of securing immovable centre of gravity, being a combination of a boat of unvarying total weight when light with ballast tanks of definite volume filled completely with water.

New application in all maritime countries.

7. Arrangement of water ballast tanks and apparatus to enable submarine boats to manoeuvre rapidly in water of various specific gravity.

New application in all maritime countries.

8. Automatic control of specific weight of submarine boat to cause it to correspond with the specific weight of the water in which it operates.

New application in all maritime countries.

9. Automatic prevention of dive below pre-determined depth.
New application in all maritime countries.
10. Automatic lightening of boat's total weight in case of accidental submergence below pre-determined depth limit.
New application in all maritime countries.
11. Visual gauge, indicating trim, longitudinal inclination and depth of submergence.
New application pending in all maritime countries.
12. Means of preserving total weight and trim unchanged when torpedoes are discharged or moved in the boat's interior.
New application in all maritime countries.
13. Arrangements of the boat's interior and of the main elements of weight to ensure liveliness and handiness.
New application in all maritime countries.

2. ADMIRALTY TO MESSRS. VICKERS SONS AND MAXIM, LTD.

Strictly Confidential.

Admiralty, S.W.
13th December, 1900.

S. 26846/25177.
Gentlemen,

Referring to your letter of the 12th ultimo and to the previous correspondence and interviews which have taken place, on the subject of the supply to the Lords Commissioners of the Admiralty Submarine Boats of the Holland Type No. 7, My Lords desire me to inform you that they are now prepared to agree with you for the construction and delivery of five such boats on the following conditions:—

2. The price including royalty of each of these boats is to be £35,000 (Thirty-five thousand pounds) to include the delivery of the boat at such English Naval ports as may be selected by the Admiralty.

3. The boats are to be in every respect similar to the best submarine boats which are now under manufacture for the United States Navy by the Holland Torpedo Boat Company; and all improvements which experience in America may render possible before the delivery of the boats are to be embodied in them without additional payment of Royalty or otherwise. During the construction of the boats the representatives of their Lordships are to have access to your works to inspect the manufacture and to test the quality of materials used.

4. The conditions to be guaranteed and fulfilled at the official acceptance trials of the boats are to be those enumerated in paragraph 8 of your letter to the Admiralty of the 27th of October, 1900. It is to be understood however that the limits within which the course and depth are to be maintained on these trials must not exceed the limits shown in corresponding trials for the United States Navy. These limits are to be stated definitely and embodied in the formal contract which will be prepared if this offer is accepted by you.

5. A trained crew is to be provided by you and placed at the service of the Admiralty for the purpose of instructing a British Naval Crew in the

working of the Boats under all circumstances of service. The Admiralty agrees to pay the expenses of the maintenance and services of the trained crew, at rates to be mutually agreed upon.

6. Dates are to be agreed upon for the completion and delivery of the boats. It is desired that the first boat shall be completed and delivered at the earliest possible date.

7. If any additional boats are ordered of you the price per boat shall be determined by separate negotiation but shall not exceed £35,000 (Thirty-five thousand pounds) including Royalty unless substantial improvements are introduced. A Royalty of £2,500 (Two thousand five hundred pounds) per boat shall be paid you in respect of any boats built in H.M. Dockyards in cases where the Holland Patents are used and so long as they remain in force.

8. As regards your proposal that their Lordships should undertake to pay a Royalty of £10,000 (Ten thousand pounds) per boat, on any boat ordered for manufacture by private firms in this country I am to inform you that there is no intention to place such orders; but should exceptional circumstances make such action desirable the question of Royalty will be dealt with at the time.

9. My Lords agree that you shall receive about one half of any orders for boats of this type which they may require.

10. Their Lordships will undertake that the details of boats supplied to them by you or built in H.M. Dockyards shall be kept confidential as far as possible consistently with the effective use of the boats. They will however require from you a like undertaking that you will keep confidential any improvements in the construction of the boats which may be suggested by the Admiralty.

11. My Lords must be satisfied by you that you are legally entitled to contract with their Lordships for the construction and delivery of the five boats in question and of any further boats that may be ordered of you, and will require an indemnity from you against any claim for Royalty on the part of the Holland Boat Company.

12. I am to request that you will state whether you are prepared to accept the order for the five boats on the terms above specified and if so that you will submit the dates at which you will undertake to deliver the first and each of the four succeeding boats at one of H.M. Dockyards, the limits within which the course and depth are to be maintained on the trials of the boats (see paragraph 4) and furnish evidence that you are in a position to contract for the construction and delivery of the boats in question.

I am,
Gentlemen,

Your obedient Servant,

EVAN MACGREGOR.

Messrs. Vickers Sons & Maxim, Ltd.

APPENDIX 20.

(See Q. 2516.)

The following Questions were put by Dame Rachel Crowdy in writing:—

I.—(A) How many employees in your factories were engaged in manufacture of arms:—

(i) On 1st January, 1932;

(ii) On 1st November, 1935.

(B) What proportion of these men were engaged in manufacturing arms for export to non-British countries abroad?

II. What proportion of these men are highly specialised workers who could not easily be transferred to employment in the production of "peaceful" products?

III. What is the proportion of "peaceful" and "warlike" products respectively?

Could you give these proportions in a list of the various peaceful and warlike products for each of the factories under your control?

The replies submitted by Messrs. Vickers Ltd., are as follows:—

I.—NUMBERS OF EMPLOYEES ON 1ST JANUARY, 1932 AND 1ST NOVEMBER, 1935, RESPECTIVELY ENGAGED ON

(A) MANUFACTURE OF ARMS;

(B) MANUFACTURE OF ARMS FOR EXPORT TO NON-BRITISH COUNTRIES ABROAD.

	(A)		(B)				
	On 1st Jan. 1932.	On 1st Nov. 1935.	On 1st January, 1932.	On 1st November, 1935.			
(1) <i>Vickers Group.</i>							
Vickers Train Lighting Company Limited.	—	—	—	—	Non Manufacturing Co.		
R. Boby Limited	Nil	Nil	Nil	Nil	Non Manufacturing Co.		
British Separators Limited ...	—	—	—	—			
Cooke Troughton & Simms Ltd.	109	105	Nil	Nil			
Ioco Rubber & Waterproofing Co. Ltd.	Nil	Nil	Nil	Nil			
Supermarine Aviation Works (Vickers) Ltd.	577	997	Nil	1%	10		
Vickers (Aviation) Limited ...	1,236	2,505	Nil	Nil			
Total	1,922	3,607	Nil	10			
				0.28%			
(2) <i>Vickers-Armstrongs Group.</i>							
Vickers-Armstrongs Limited	11,088	18,469	17.82%	1,976	12.06%	2,228	
Thames Ammunition Works Limited.	44	121	Nil	Nil	Nil	Non Manufacturing Co.	
Variable Speed Gear Limited	—	—	—	—	—		
Whitehead Torpedo Co. Ltd.	458	880	100%	458	15%		132
Vickers (Ireland) Ltd. ...	Nil	Nil	Nil	Nil	Nil		
Palmers Hebburn Company Ltd.	Nil	Nil	Nil	Nil	Nil		
Total	11,590	19,470	2,434	2,360			
				21%	12.12%		
(3) <i>English Steel Corporation Group.</i>							
English Steel Corporation Limited.	904	2,057	Nil	Nil	Nil	Non Manufacturing Co.	
Darlington Forge Limited ...	100	Nil	Nil	Nil	Nil		
Industrial Steels Limited ...	—	—	—	—	—		
Taylor Bros. & Co. Limited ...	Nil	Nil	Nil	Nil	Nil		
Total	1,004	2,057	—	—			
(4) <i>Metropolitan-Cammell Group.</i>							
Metropolitan-Cammell Carriage & Wagon Co. Limited.	Nil	Nil	Nil	Nil		Non Manufacturing Co.	
Metropolitan-Cammell Weymann Motor Bodies Limited.	—	—	—	—	—	Wagon Hire only.	
Midland Railway Carriage & Wagon Co. Ltd.	—	—	—	—	—	Closed for Production.	
Leeds Forge Company Limited	—	—	—	—	—	Closed for Production.	
Patent Shaft & Axletree Co. Limited.	Nil	Nil	Nil	Nil	Nil		
Willingsworth Iron Company Limited.	—	—	—	—	—		
Total	—	—	—	—			
GRAND TOTAL ...	14,516	25,134	2,434	2,370			
			16.77%	9.43%			

II.—THE PROPORTION OF MEN (ENGAGED IN THE MANUFACTURE OF ARMS) WHO ARE HIGHLY SPECIALISED WORKERS WHO COULD NOT EASILY BE TRANSFERRED TO EMPLOYMENT IN THE PRODUCTION OF PEACEFUL PRODUCTS.

In regard to the question as to how many of the men employed on armament manufacture at certain specified dates could not be transferred to employment on commercial products, the answer, generally speaking, is that in the case of Vickers-Armstrongs Limited, which is the main armament producing company, all men engaged on armament work, with the exception of possibly 50 design specialists, could be transferred to such work provided

always that there were sufficient commercial work of a high class engineering nature available to employ their services. Generally speaking, this answer applies to all the companies engaged on armament production in the Group with the exception possibly of The Whitehead Torpedo Co. Limited. The work of that company is of a specialised nature and there being no commercial products produced there at the moment, it might be difficult to find suitable commercial work of the nature on which the men could be employed, but here again, assuming that suitable commercial work were available the men employed on armament manufacture could be transferred to commercial products.

III.—PROPORTION OF PEACEFUL AND WARLIKE PRODUCTS RESPECTIVELY EXPRESSED IN NUMBER OF EMPLOYEES AND LIST OF SUCH PRODUCTS IN RESPECT OF EACH WORKS.

	1st January, 1932.		Total.	1st November, 1935.		Total.	
	Peaceful.	Warlike.		Peaceful.	Warlike.		
(1) <i>Vickers Group.</i>				(a)	(b)		Non-manufacturing Company.
Vickers Train Lighting Co. Limited	—	—	—	—	—	—	(a) Flax-machinery. Refrigerators. Pneumatic and Agricultural Implements.
R. Bobby Limited...	237	—	237	236	—	236	Non-manufacturing Company.
British Separators Limited	—	—	—	—	—	—	(a) Base Measurement Apparatus. Condenser Lenses. Microscopes. Compasses. Stress Recorders. Optical Units.
Cooke Troughton & Simms Limited	226	100	335	319	105	424	(b) Telescopes. Gun Sighting Predictors. Directors. Rangefinders. Periscopes. Machine Gun Sights, etc.
Ioco Rubber and Waterproofing Co. Limited	376	—	376	506	—	506	(a) Proofed Fabric. Leathercloths. Made-up Garments. Insulating Products and Sundry Rubber Products.
Supermarine Aviation Works (Vickers) Ltd.	94	577	671	—	997	997	(b) Civil Seaplanes.
Vickers (Aviation) Limited	32	1,236	1,268	65	2,505	2,570	(a) Seaplanes and Flying Boats.
Total	965	1,922	2,887	1,126	3,607	4,733	(a) Aeroplane Spares.
(2) <i>Vickers-Armstrongs Group.</i>							(b) Aeroplanes and Spares.
Vickers-Armstrongs Limited	33.4%	66.6%		23.8%	76.2%		See separate list below.
Thames Ammunition Works Limited	4,782	11,088	15,870	5,295	18,409	23,764	(a) Blasting Fuses and Explosives for Quarries and Mines.
Variable Speed Gear Limited	41	44	85	48	121	169	(b) Filling Fuses. Detonators. Shell and Cartridges.
Whitehead Torpedo Co. Limited	—	—	—	—	—	—	Non-manufacturing Company.
Vickers (Ireland) Limited	102	458	458	305	890	880	(b) Torpedoes.
Palmer's Hebburn Co. Limited	286	—	286	308	—	308	(a) Hopper construction. Repairs to Merchant Vessels. Structural Steelwork. General Engineering and Furniture making.
Total	5,211	11,590	16,801	5,956	19,470	25,426	(a) Docking and Repairs to Merchant Vessels. Constructional Steelwork and Sheet Iron work.
(3) <i>English Steel Corporation Group.</i>							
English Steel Corporation Limited	31.0%	69.0%		23.4%	76.6%		(a) Ingots. Castings. Forgings. Stampings. Magnets. Blooms. Billets and Bars. Springs and Motor Car Frames. Tyres and Small Tools.
Darlington Forge Limited	727	100	827	5,796	2,057	7,853	(b) Gun Forgings and Mountings. Torpedo Air Vessels. Marine Forgings and Castings. Armour and Bullet Proof Plate.
Industrial Steels Limited	—	—	—	—	—	—	(a) Miscellaneous Forgings and Castings.
Taylor Bros. & Co. Limited	987	—	987	1,517	—	1,517	(b) Gun Forgings. Torpedo Air Vessels. Marine Forgings and Castings.
Total	7,410	1,094	8,414	7,313	2,057	9,370	Non-manufacturing Company.
	88.07%	11.92%		78.05%	21.95%		(a) Wheels Tyres and Axles.
(4) <i>Microscopic-Cammell Group.</i>							
Microscopic-Cammell Limited	9,199	9,132	9,844	9,814	9,844	9,844	(a) Ball-bearing Components. Weavers. Tensioners. Drilling Machines. Mill Cutters. All Castings.

										88-07%	11-03%	78-05%	21-93%						
(4) Metropolitan-Cammell Group.										2,122	—	2,122	—	3,244					
Metropolitan-Cammell Carriage & Wagon Co. Ltd.										—	—	—	—	—					
Metro-Cammell Weyman Motor Bodies Ltd.										—	—	—	—	—					
Midland Railway Carriage & Wagon Co. Ltd.										—	—	—	—	—					
Leeds Forge Company Limited										1,089	—	1,089	—	1,389					
Patent Shaft & Axletree Co. Limited										—	—	—	—	—					
Willingworth Iron Co. Limited										—	—	—	—	—					
GRAND TOTAL										3,211	—	4,633	—	4,633					
100%										16,797	14,516	19,028	25,134	44,162					
53-64%										806	46-36%	43-09%	56-91%	6,531					
806										—	2,829	868	5,663	—					
3,176										—	5,727	—	6,663	—					
84										84	—	—	59	59					
8,903										8,903	—	3,880	6,663	10,543					
Chertsey										...	...	...	...	...
Barrow ...										...	...	...	...	...
Vickers-Armstrongs Limited (See (2) above)										...	...	...	...	...
Elswick										...	...	...	...	...
Naval Yard										102	—	—	1,252	1,252					
Crayford										330	1,801	342	2,775	3,117					
Dartford										368	647	205	2,057	2,292					
4,782										11,088	15,870	5,295	18,469	23,764					

(a) Railway Carriages, Wagons, Tramcar and Bus Bodies.
Non-manufacturing Company.
Wagon hire only.
Closed for production.
(a) Steel Plates, Sections, Bridge work, Wheels and Axles.
Closed for production.

(a) Variable Speed Gear Units, Synthetic Ammonia Plant, Hydraulic Machinery, Castings, Stampings, Rolled Sheets, Pressings, Air Bottles, Coal Holes, Dock Gates, Bliss Presses, Mining Machinery, General Engineering.

(b) Field Guns, Naval Guns, Gun Mountings and Sights, Coast Defence Mountings, Transferable Mountings, Tanks, Tractors, Breech Mechanisms, Fuses, Primers, Empty Shell, Cartridge Cases, Torpedo Work, Air Bottles, Air Vessels, Magazine Cases, Empty Bombs.

(b) Experimental Tank Work.

(a) Passenger and Merchant Ship Construction, Repairs to Merchant Ships, Power Plant, Condensers, Pumps for draining schemes and general use, Cement Making Machinery, Machinery for rubber manufacture, Tyre Moulds, Castings, Oil Separators, Forgings and Stampings, Mining Machinery, Soap Making Mills, General Engineering.

(b) Land Armaments.—Field Carriages and Equipment, Anti-Aircraft Guns, Director and Fire Control Gear, Tank and Tractor Parts, Ammunition Trailers, Naval Armaments.—Naval Guns and Mountings, Submarine Mines, Paravanes, Depth Charges, Carriers and Throwers, Director and Fire Control Gear, Shipbuilding.—Cruisers, Submarines, Destroyers, Miscellaneous Parts for Armaments.

(a) Merchant Ship Repairs.

(b) Cruisers and Destroyers Construction.
(a) Cement Machinery, Embroidery Machines, Twisting Machines, Boxmaking Machinery, Harness Testing Machines, Printers' Gating Guns, Glass Bottle Machinery, Sporting Guns and Rifles, Pumps, Bliss Presses, General Engineering.

(b) Machine Guns and Mountings, Director and Fire Control Gear, Predictor Gear Sights, Berthier Gun, Fuse Setting Machines, Pack saddlery.

(a) Furniture, Wireless Cabinets, Crane Indicators, Wheels and Spindles for Ropeways, Sundry Wood Contracts, Oil Seals.

(b) Aircraft Mountings, Machine Gun Sights, Aircraft Bombs, Empty and Filled Shell, Fuses, Primers, Gunners, Ammunition Boxes.

APPENDIX 21.

MEMORANDUM SUBMITTED BY SIR CHARLES CRAVEN RELATING TO ARRANGEMENTS BETWEEN BRITISH FIRMS ENGAGED IN WARSHIP BUILDING.

Shipbuilding Conference.

It is common knowledge that since the War the shipbuilding industry of this country has been in a very depressed condition, in which state it still remains, the recent improvement being so small as to have little effect on the industry as a whole. For some years after the War the shipbuilders struggled independently against the prevailing conditions in the hope that there would be a return to a more normal state of affairs. During this period competition for the few orders available was so intense and prices were so keenly cut that it is safe to say that no ship of any size was built at a price that covered establishment charges, or, in other words, without a loss to the builder. This applied to warships as well as merchant ships. The hope that conditions would improve was not realised, and in fact they progressively deteriorated. In consequence, the firms in the shipbuilding industry then decided that they must take some steps amongst themselves to endeavour to prevent the wasteful and uneconomic methods that were being followed, if the bulk of the members were not to find themselves bankrupt in the course of a few years.

Their first step was to form the Shipbuilding Conference, and subsequently National Shipbuilders Security Limited. The latter organisation has as its object the purchase of redundant shipbuilding yards, and berths in shipyards, and their sterilisation as far as building of ships is concerned, thus endeavouring to bring the capacity for output more nearly into line with the requirements for new construction, and to some extent this has improved the position.

The Shipbuilding Conference embraced all the principal merchant shipbuilders in the country, including of course all the builders of warships. The volume of orders for warships, both British and foreign, is so much reduced in recent years that practically all the builders of warships are primarily dependent upon merchant work to keep their shipyards occupied. The Shipbuilding Conference, however, deals only with merchant vessels, warships being excluded from the scope of its activities since only a few of the members are interested in warship construction, and the details of its operations will therefore be of no special interest to the Royal Commission. It may, however, be stated that the ultimate object of the conference is the complete reorganisation of the whole of the shipbuilding industry. Progress is being steadily made towards that end, but it is necessarily slow in view of the large number of shipbuilders concerned, scattered over Great Britain and Northern Ireland, the multiplicity of their interests and the variety of their products.

Warships.

Though the reorganisation of the shipbuilding industry so far as warship building is concerned was undertaken independently of the conference by those members of the conference interested therein, it is a part of the general scheme for the whole industry. The warship builders are all important companies, and took a leading part in the formation of the Shipbuilding Conference and N.S.S., Ltd. Their numbers are, however, limited, there being not more than twenty firms seriously interested in building warships and their machinery, and it was therefore less difficult for them to get together and formulate

arrangements than for the vast number of firms engaged in merchant ship construction, and also the problems were less complex owing to the smaller number of different types of ships involved.

Consequently, the progress of the general scheme has been more rapid and complete in respect to warships than to merchant ships.

Cruiser building after the War commenced in the year 1924, at a time when the shipbuilding industry was at a very low ebb. Some of the firms were entirely without work and others were accepting orders at prices which were barely sufficient to cover material and labour costs.

Accordingly, in 1925, certain conversations took place between the warship builders, the outcome of which was a distribution of the available work at prices which gave a reasonable return, and enabled technical staffs and plant to be retained.

Even with these arrangements some of the firms found it impossible to continue in business, as evidenced by the fact that Palmers and Beardmores have closed down and Armstrongs have been amalgamated with Vickers as regards their warship, passenger ships, armament and steel business.

The agreements in regard to shipbuilding referred to in our reply to the Questionnaire were drawn up in order to put on a more formal basis, arrangements, some of which had already been in existence for nine years, and which had been found to be of practical value.

It is my opinion that the agreements between the firms to distribute the work in this way have been of great advantage both to the government and the industry. Without such arrangements it is obvious that, in view of the comparatively small volume of work available, the weaker of the firms would have disappeared from business, and the stronger firms would have had their resources considerably depleted by the effect of accepting work at unremunerative prices. Further, without this, it seems clear that some arrangement for an equitable division of the available work over the districts would have had to be made by the Admiralty, who could not have allowed firms with strong cash resources to have taken more than a certain proportion of orders, owing to the necessity of keeping the skill and equipment available in a sufficient number of firms on the warship contractors' list in the event of a national emergency arising.

It is interesting to note that, although arrangements for obtaining reasonable prices have now been in force for several years, the cost per ton of all ships built in the Royal Dockyards in the years 1925 to 1934 inclusive, as recently stated to Parliament by the First Lord of the Admiralty, was £220-55, whereas in the same period the price paid per ton to the private firms was £201-15. The above figures include two battleships in the ships built by contract, and as no battleships were built in the Royal Dockyards in this period, perhaps a more accurate comparison would be obtained by excluding battleships, in which case the price per ton of the contract-built ships works out at £210-4.

With this agreement between the firms there is now a much better field for the interchange of technical information, and the practical difficulties that arise during construction are more readily discussed than could be the case under more competitive conditions.

WARSHIP CONSTRUCTION, 1925-1934 (INCLUSIVE).

	Dockyard Built Ships.			Contract Built Ships.		
	Total Tonnage.	Total Cost.	Average Cost Per ton.	Total Tonnage.	Total Cost.	Average Cost Per ton.
Battleships	—	£ —	£ —	67,400	£ 11,862,400	£ 176.00
Light Cruisers and Cruisers ...	98,200	20,968,670	213.53	86,220	17,860,510	207.15
Flotilla Leaders	2,875	649,025	225.74	5,770	1,295,210	224.47
Destroyers	2,750	588,500	214.00	51,700	10,671,690	206.41
Submarines	11,391	4,131,569	362.70	31,743	7,764,562	244.61
Sloops	14,670	2,314,410	157.76	7,440	888,950	119.48
TOTAL	129,886	28,652,174	220.59	250,273	50,343,322	201.15*

* Excluding Battleships, average cost, £210.4.

APPENDIX 22.

LETTER WITH ENCLOSURES FROM SIR C. CRAVEN RELATING TO AN ACCUSATION OF BRIBERY.

Vickers House,
Broadway, Westminster,
London, S.W.1.
13th January, 1936.

The Secretary,
The Royal Commission on the
Private Manufacture of and
Trading in Arms,
8, Buckingham Gate,
S.W.1.

Sir,

I have the honour to refer to one particularly unpleasant charge which was brought against me at the American investigation, when I was accused of the bribery of a British Government official, arising out of a letter which I wrote to Mr. Spear of the Electric Boat Company, dated 10th September, 1930.

You will see, on referring to Exhibit 20 and pages 29 and 30 of Volume one of the American investigation the charges to which I refer.

I had hoped that the matter would have been raised at my recent examination, but as it was not brought up, I submit herewith a brief note of the evidence which I should have given regarding the matter and a photographic copy of a letter which I received from Engineer Vice-Admiral Sir Harold Brown, K.C.B., the Engineer-in-Chief of the Fleet, dated 2nd January, 1935.

I submit that this reply and copy of letter should be added to the records of the Royal Commission.

I have the honour to be,

Sir,

Your obedient servant,

C. W. CRAVEN.

AMERICAN ARMS INQUIRY.

Exhibit 20—Page 331.

My letter to Spear, dated 10th September, 1930.

This letter refers to H.M.S. "Thames." An endeavour was made at the United States inquiry to get Spear to admit that I had bribed someone because in my letter I stated that "there was certain action I had to take which involved expenditure." I could not explain this expenditure to Spear at the time because the Admiralty had introduced a new machinery arrangement in the "Thames" which they then wished to keep secret.

This involved the installation of two patented Ricardo type diesel engines for charging batteries and driving the blowers for the main engines. We had hoped that the Admiralty would supply us with these auxiliary engines for which we had no licence to manufacture or permit us to purchase from the only licensee. We had no knowledge of their behaviour, nor had we any experience of their manufacture. We could have purchased engines from Brotherhoods, the licensees of the Ricardo engine, for £8,689 11s., but the Engineer-in-Chief of the Fleet insisted on our manufacturing them ourselves, so ensuring undivided responsibility for the whole engine installation of the submarine, which totalled 10,000 B.H.P. We, therefore, had to take a licence from Ricardo involving us in a lump sum payment of £5,000, plus royalty of 6s. per B.H.P. This is the special expenditure to which I referred in my letter.

Personal.

Admiralty, S.W.1.

2nd January, 1935.

Cdr. Sir C. W. Craven, O.B.E., R.N.,
Messrs. Vickers-Armstrongs Limited,
Naval Construction Works, Barrow-
in-Furness.

My dear Craven,

I am sorry to have been so long answering your telephone inquiry of 27th re "Thames" Ricardo engines, but I'm afraid I forgot it for the moment.

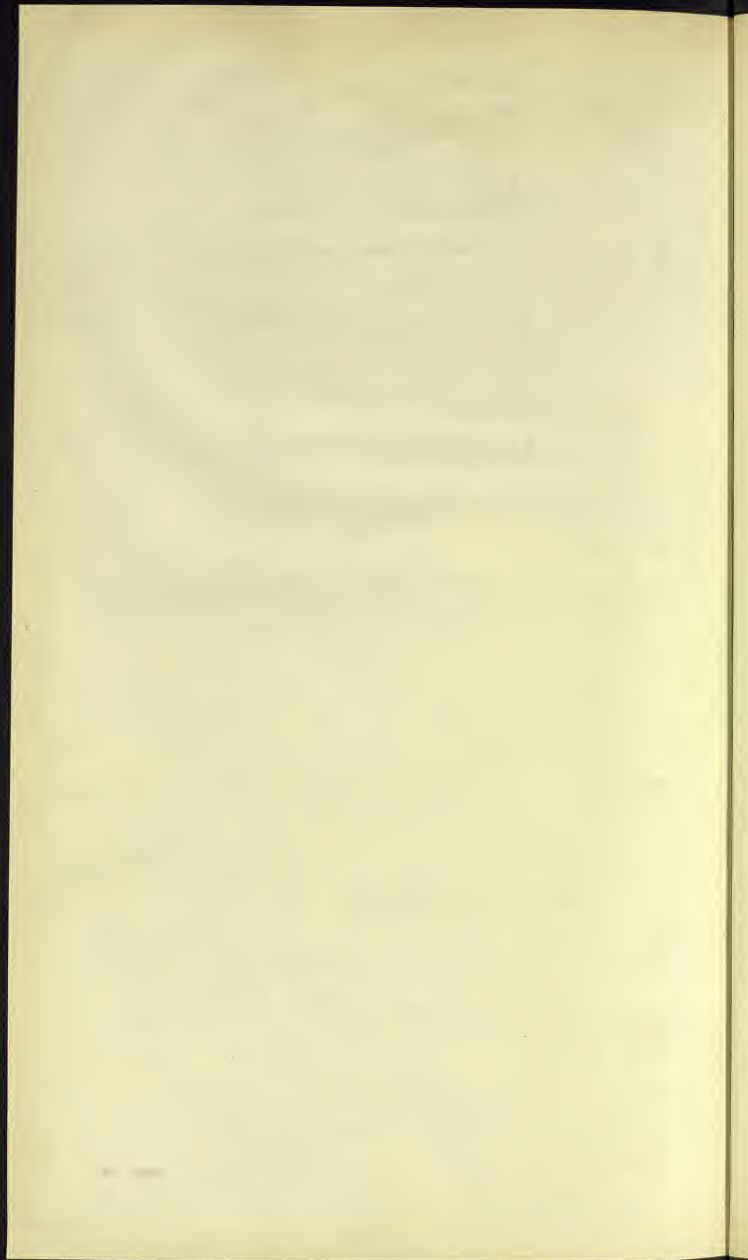
I have made inquiries which confirm my own recollection that you were told we wished you to make these engines yourselves and thus assume full responsibility for the job as a whole.

I have no direct evidence as to whether your original tender contemplated making these engines yourselves or purchasing them from Messrs. Brotherhood, but in view of the above conversation and the fact that your quotation for this machinery was identical with that of Messrs. Brotherhood I can only assume you proposed obtaining them from Messrs. Brotherhood.

Hope this is the information you want.

Yours sincerely,

H. A. BROWN.



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

15

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

FIFTEENTH DAY

WEDNESDAY, 5TH FEBRUARY, 1936

WITNESSES—

On behalf of Messrs. IMPERIAL CHEMICAL INDUSTRIES LTD.:—

Sir HARRY DUNCAN MCGOWAN, K.B.E., Hon. D.C.L., Hon. LL.D.
(Chairman and Managing Director)

Mr. HAROLD JOHN MITCHELL (President)

Mr. JOHN ROGERS, O.B.E., F.I.C. (Director)

COL. EDMUND FRASER CRESWELL, D.S.O. (Delegate Director
of Messrs. I.C.I. (Metals) Ltd.)

Mr. JAMES LAING (Chairman of the Explosives Group)

Mr. LEONARD WILLIAM BICKFORD SMITH (Manager of Foreign
Department)

Mr. CHARLES STANLEY ROBINSON, M.A., F.I.C., M.I.Chem.E.
(Technical Expert)

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LONDON

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1936

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

FIFTEENTH DAY

Wednesday, 5th February, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Chairman: We propose to-day to commence taking the evidence of Imperial Chemical Industries, Limited, but before we do that I have two statements which I want to make, and the first is this.

I have since our last meeting received several letters addressed to me personally complaining of sittings of the Commission being held in private and urging the importance of the publication of all material submitted to us.

As one of these letters was published in the Press I think that the best way of dealing with them is to make a statement here to-day.

With regard to the general question of publicity it must, I think, be obvious that some of the information which it is important should be given to the Commission can only in the public interest be given confidentially—I refer for illustration to matters relating to questions of national defence and Government preparations for dealing with an emergency.

There is also information of a different character which may be brought before the Commission, which the Commission may consider they should not insist upon being made public, because it is of such a character that publication might be injurious to the general business interests of the witness, or the information in question is either quite irrelevant to the issues before the Commission, or is of such slight importance that it would clearly be unreasonable to refuse a request that it should not be published. On these last mentioned questions the Commission must be the judge.

At our first sitting I announced that our sittings to take evidence would as far as possible be held in public, and to this I adhere; and I desire also to state that in coming to a decision as to whether a sitting should be held in public or not, or whether any information given to the Commission should be withheld from publication, the Commission recognise that account should be taken of the legitimate desire of the public for information, as well as of the protection of public and private interests.

If reference is made to Vickers Ltd.'s evidence* it will be seen that their claim and their request for non-publication falls under one or other of the two heads. As regards Question 6, this relates to matter of national defence, which it would not be in the public interest to disclose. The remainder of the unpublished matter is covered by the other exception which I have mentioned, except in so far as it has already been made public in the proceedings of the United States Senatorial Committee.

Much of the information under this second head has really no relation at all to any matter which has been brought before us, or any matter which we need consider; as for instance that part of the

information in reply to Question 7 which relates to agreements solely concerning the firms' ordinary business and having no relation to their armaments business; and with regard to the remainder, the Commission came to their decision after careful consideration.

I have made this somewhat lengthy statement not because I consider that the writers of the letters are entitled to the information I have given, but because I wish that the grounds upon which the Commission have acted, and will continue to act, should be generally known.

With regard to private sittings three only have so far been held. In one instance, in which the Court was cleared, this was done because a member of the Commission wished to ask questions the answers to which might have disclosed matters the disclosure of which was undesirable from the point of view of national defence. The sitting only lasted a few minutes and no answer was given which can be regarded as at all material.

A second instance was when we heard Sir Eric Geddes who, in response to my request that he should give us the benefit of his experience, consented to do so provided he was heard in private: A note was taken of his evidence and that of Colonel Mayo and it is in print and will with Sir Eric's consent be published in full in due course and form part of our proceedings.

The third instance was when Sir Maurice Hankey, who is proposing to give evidence at one of our next meetings in public, gave us information of an important but extremely confidential character.

I had written the above before receiving on Monday morning a further letter signed by a number of persons who had either given evidence before us, or who were interested in the proceedings of this Commission.

It is a mistake to assume, as the letter apparently does, that the Commission acquiesce in a request for non-publication of material supplied to them without investigation or consideration; or that the Commission necessarily bases its decision merely on the grounds indicated in the request; or that the documents upon which the Commission have come to a decision contain "relevant information concerning major issues," as the letter contends. It is only those who have had the opportunity of considering the material withheld from publication who can decide the question of relevancy, which as pointed out above must be entirely a matter for the Commission to decide.

With regard to the second point mentioned in the letter, the Commission will of course be prepared to consider any further suggestions submitted to them; but I would point out that the illustrations submitted are really suggestions as to the inferences which the Commission ought in the opinion of the

* See *Minutes of Evidence*, 13th & 14th Days, p. 346.

5 February, 1936.]

Messrs. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

signatories to draw from the evidence already before them rather than suggestions why further evidence is required.

So much for that. The other statement is a statement which I desire to make in reference to a complaint by the directors of the P. & O. Company, who felt aggrieved because of a statement that had been made in the evidence by the Union of Democratic Control. In their statement before us they had referred to a firm of Alexander Stephen & Sons, who are building ships for the government, and they had referred to the fact that the P. & O. Company had held a number of shares in this company and they went on to infer from the facts with reference to the holding of those shares that the method by which the P. & O. Company had exercised its control "is typical of the way in which the control of armament and other firms is switched about among nominees." The P. & O. complain of that and they say in a letter addressed to our secretary: "I am instructed to inform you that the statement is inaccurate in material particulars, and that the inference of subterfuge drawn in the second paragraph is entirely misleading."

I ought to add that the P. & O. go on to say that of the two blocks of shares referred to in the statement of the Union of Democratic Control, one

was a block of ordinary shares and one was a block of preference shares, and the P. & O. point out that, with regard to the preference shares, they have always been held and registered in the name of the P. & O. and, with regard to the ordinary shares, the block was sold for cash in 1925 outright. We thought it right to submit their letter to the Union of Democratic Control. In answer to that letter, the secretary to the Union of Democratic Control contends that they were justified in their statement; because although the P. & O. sold the shares in 1925, those shares are to-day controlled by a company whose directors are also directors of the P. & O. Company.

Now I have stated in public what each party wished to say about this matter. It is entirely outside the scope of anything that we either wish to decide or have the power to decide and the matter must be left there. Whether, in fact, the directors of those two companies who are at present holders of this block of ordinary shares are the same directors as the directors of the P. & O., and whether that justifies the statement which the P. & O. characterise as an inference of subterfuge, is a matter which it is impossible for us to decide and the readers of these statements must judge for themselves. Now, we will proceed with the evidence.

SIR HARRY DUNCAN MCGOWAN, K.B.E., Hon. D.C.L., Hon. LL.D.; Mr. HAROLD JOHN MITCHELL; Mr. JOHN ROGERS, O.B.E., F.I.C.; Colonel EDMUND FRASER CRESSWELL, D.S.O., Royal Artillery, retired; Mr. JAMES LAING; Mr. LEONARD WILLIAM BUCKFORD SMITH; Mr. CHARLES STANLEY ROBINSON, M.A., F.I.C., M.I.Chem.E.; representing Messrs. IMPERIAL CHEMICAL INDUSTRIES LTD.,

called and examined.

2578. *Chairman*: We have been supplied with a statement in full by Imperial Chemical Industries, Limited, and a statement containing the answers to the questions which we have submitted to them for their answer; also a statement by the chairman which he wishes to give independently of the general statement by the company. It is proposed, subject to everybody's convenience, that the general statement should be read in the first instance and that it

should be followed by the chairman's statement, and then we will go through the statement containing the answers, and any questions which the members of the Commission desire to put to any of the witnesses will follow. Does that meet with your approval?

Sir Harry McGowan: Yes, Sir.

The following statement was read:

STATEMENT SUBMITTED BY MESSRS. IMPERIAL CHEMICAL INDUSTRIES LTD.

1. There is a widespread, but utterly fallacious, impression that Imperial Chemical Industries, Limited, is essentially an armaments firm, engaged to a large extent in the production of war materials.

2. I.C.I. is advantaged far more by the profits of peace-time operations than by the results of the sharp peaks of emergency production. The company enjoys real prosperity only in extended periods of tranquillity and industrious endeavour.

3. I.C.I. is the result of a combination of interests, the products of which cover a very wide field ranging from mining, quarrying and, to a minor extent, military explosives, non-ferrous metals and sporting and military ammunition to an enormous variety of chemical products including alkalis, acids, fertilisers, industrial gases, dyes, paints, lacquers, plastics, insecticides and such goods as leathercloth, lightning fasteners, motor bicycles, etc., etc. The manufacturing activities of the company are divided into eight groups, only two of which (the explosives and metals groups) are directly concerned with the manufacture of munitions. Even in these two groups sales of military products are only about 5-6 per cent. of their turnover. In relation to the total turnover of I.C.I., its total sales of military products in the last five years are only 1.8 per cent., whilst foreign sales are only 0.9 per cent. The proportion

of the company's total profits attributable to "arms and munitions of war" averages only 1.4 per cent. over the same period.

4. These military products consist mainly of propellant powders and T.N.T.—the latter also being incorporated in mining explosives—and small arms ammunition or component parts therefor, such as brass cups, discs and cartridge cases. To remove any misunderstanding it should be stated that, in addition to their present moderate capacity engaged in the manufacture of such products, I.C.I. with the full knowledge and desire of H.M. Government, are without subsidy maintaining for use, or in a condition capable of rapid installation for use in case of national emergency, certain plants for military explosives and small arms ammunition. These have not been employed since 1918 and do not, therefore, find a place in the company's active field of operations.

5. A definition of "armaments" has been made which directs the Commission exclusively to the concerns which are equipped for building battleships and manufacturing guns, tanks, ammunition, explosives, and the like, with a consequent creation of public prejudice against these particular concerns. But it must be apparent that there is hardly an industry in the country that is not interested in materials for military activities.

5 February, 1936.]

MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

6. Reference has been constantly made to a "traffic in arms" and in conjunction with this directors and shareholders in industrial enterprises have been freely pilloried. "Traffic in arms" has been compared to the "drug traffic" and the "slave traffic." There is no evidence that the Company, or any individuals connected with it, are actuated by any base or improper motive in supplying—in open competition with manufacturers of other countries, and always and only by British Government licence—the materials considered necessary by friendly nations for purposes of national defence. The company has submitted a list of its agreements, understandings and associations with other concerns engaged in similar activities to its own, and a study of those documents will show that for the most part the agreements deal solely with industrial commodities. The company holds that this evidence successfully disposes of the claim that it is, directly or indirectly, party to what has been designated an "International Armaments Ring."

7. Suggestions have been made that attempts to stimulate armament business in certain directions have been made either by newspaper propaganda, or by otherwise insinuating that others are purchasing armaments. It has also been suggested that attempts have been made to influence international conferences and to hinder the British Government's efforts for universal peace. Such insinuations, if made in relation to I.C.I., are refuted.

8. In the years 1914-1918, the facilities which existed in this country for the manufacture of munitions and the expert technical knowledge of them possessed by certain firms were freely drawn upon by H.M. Government and regarded as a vital asset in the successful defence of the country. The position is not very different to-day, when other nations are rapidly increasing their armed forces, that we can now afford to dissipate the collective potentialities of private industry.

9. It has been suggested that private industry to some extent failed the country in the War. There may have been some such instances, although it should not be forgotten that war-time requirements are so peculiar and colossal as compared with peace time that they cannot always be anticipated. I.C.I. claims that during the War its associated companies did all, if indeed not more, than could have been expected, and kept their promises, and they were at the time thanked accordingly.

10. Certain statements have been made publicly to the effect that the costs of private enterprise materially exceeded those of Government factories during the war period. True comparisons are well-nigh impossible owing to varying conditions and the wide differences in methods of costing. It was impossible to avoid this under the extreme pressure of the time, but it is relevant as regards costs comparisons to refer to the principal Government factory. In this connection attention is directed to the Report by the Committee of Enquiry into the Royal Ordnance Factory, Woolwich,* submitted to the then Minister of Munitions (Lord Inverforth) which appears to be particularly appropriate to the point. Dealing with costs the report states:—

"During the War no complete accounts or statements of costs have been rendered by Woolwich as stock has not been taken since the beginning of the War, so that even the yearly figures of costs of production are not now available."

And, further, that:—

"The control, supervision and management of Woolwich have in the main been conducted during the War without any adequate systematised knowledge of what the various products were costing."

11. On the point of utility to the State, I.C.I. while not to any material extent engaged during times of peace in the manufacture of military products, as shown in paragraph 3, has great potential

resources for their manufacture, as although many of its plants were designed for commercial products, they can be readily converted to other uses. For example, we produce considerable quantities of nitric acid which is a basic material for practically all high explosives manufacture. From the by-products of the hydrogenation of coal, for the production of petrol, we can produce certain compounds which enter into particular types of high explosives. We manufacture nitro-cellulose for industrial purposes, and could readily change over to nitro-cellulose for military explosives. Some of our sporting powder plant could be utilised for military propellants. Our nitrogen plant for the production of fertilisers, is capable of being converted to produce ingredients necessary in certain disruptive explosives. Our nitro-glycerine plant, used in connection with the manufacture of mining and quarrying explosives, can be turned over to the production of a necessary ingredient for the manufacture of cordite, subject, of course, to the continuance of the necessary production of explosives for coal mining. Detonators, safety fuse, gunpowder, and other materials, which we manufacture for the mining and quarrying industries, appropriately modified, can be used for military purposes.

12. Under modern conditions of war it would be impossible for any first-class nation to defend itself without an extensive, highly skilled and perfectly equipped chemical industry, such as that available in I.C.I.

As evidence of the great contribution towards national security made by I.C.I. in pursuit of its normal peace-time activities the following illustrative details are submitted. These indicate that the chemical industry of the country has been placed on a sound basis and that it has been enabled to achieve its proper place internationally, whilst at the same time the essential reserve of trained workers and technicians has been built up. An efficiently organised chemical industry is necessary to any highly industrialised country, particularly to one with great textile industries exporting a large proportion of their production. Without such products as caustic soda, soda ash, chlorine, sodium sulphide, dyestuffs, sulphuric and other acids these industries could not exist.

(a) Nitrogen and Petrol Synthesis.

During the War Germany was very largely thrown back on her internal resources, and she would have been unable to continue the War unless she had been able to obtain the supplies of nitric acid, essential for the continued manufacture of military explosives, as a result of her chemical industry developing the large scale fixation of atmospheric nitrogen. British nitric acid requirements were dependent on the importation of nitrate of soda from Chile, and sulphur from America and Spain, and were only secured by the strength of our Navy. It may be mentioned that approximately 1½ tons of nitrate of soda and ½ ton of sulphur are required for every ton of cordite or T.N.T. made.

The Government, recognising the extreme danger of this position decided in 1918 to erect a nitrogen fixation plant at Billingham although the technical knowledge available was scanty and inadequate. However, the War ended before much could be achieved and when Brunner, Mond & Co. took over this venture they had to start *de novo*. Since then that firm, and subsequently I.C.I., have developed the technique to a high state of efficiency and have created at Billingham an industry which employs directly nearly 10,000 men.

The obvious peace-time utilisation of fixed nitrogen is largely in the direction of nitrogenous fertilisers, and after the War Germany, and at a later date I.C.I., were able not only to meet all home requirements but to obtain world markets. The growth of economic nationalisation, however, soon diminished these markets and it became necessary to find other means of employing surplus plant.

* Cmd. 229.

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[Continued.]

The technique of the hydrogenation of coal to produce petrol has much in common with the high pressure synthesis of nitrogen compounds, and as a result of many years intensive research I.C.I. is employing a good deal of its surplus nitrogen plant and machinery, together with much new and special equipment, on the hydrogenation of British coal and cresosote to produce petrol.

Among the products manufactured at Billingham—all for industrial or agricultural purposes—are ammonia, nitric and sulphuric acids, ammonium nitrate, sulphate of ammonia, nitrate of soda and petrol. All of these would play a vital part during a time of national emergency and in their production I.C.I. is entirely self-contained and completely independent of any imported material.

The technical organisation at Billingham has, notwithstanding the many difficulties which had to be overcome, been built up to a high state of efficiency. It contains some of the best technicians not only in this country but in the world.

(b) *Dyestuffs Manufacture.*

It is axiomatic that a sound dyestuffs industry is essential to national security and well-being. The recognition of this by the British Government was evidenced by their active participation in British Dyestuffs Corporation and by their willingness to prohibit the importation of such dyestuffs as could be produced in Great Britain even when a free-trade policy prevailed.

At the end of the War, and for some time afterwards, the dyestuffs industry in this country was in a struggling condition, and although protected, as far as the home market was concerned, by Government regulation of imports, it was quite unable to hold its own in foreign markets. The position is now entirely changed, chiefly owing to the efforts of I.C.I. The expenditure of large sums on plant, processes, and research, combined with wide experience of international trading has placed Great Britain on a competitive footing with other foreign producers in the dyestuffs markets of the world. In addition, direct security of employment has been created for about 3,000 British workmen and some hundreds of organic chemists. Indirectly numerous other workers have benefited, as practically all the raw materials used in the dyestuffs industry are of home manufacture.

There is an ill-informed impression current that the dyestuffs industry is interested in the production of poison gases. This is entirely untrue. I.C.I.'s plants and processes are exclusively designed and employed for industrial purposes. It is, however, a national asset that the knowledge of organic chemistry; the trained personnel and the varied and flexible plant employed in this industry could be used in an emergency to make almost any organic compound.

It is not to the interests of dyestuffs makers to devote time and attention to materials to be used for lethal purposes. Phenol, for instance, which is obtained as a by-product from gas works, or can be synthesised in a suitably equipped dyestuffs plant, is used in large quantities in the production of synthetic resins of wide application in industry. It can also be converted into phenacetin, a pharmaceutical product of widely recognised beneficial properties. When treated with nitric acid it is converted into picric acid, which can be used as a dye intermediate, being the starting material for certain chrome dyestuffs. It can also be used for dressing wounds and burns and, of course, as a munition of war. It is obvious that the interest of the organic chemist and his chief employer, the dyestuffs manufacturer, will be focussed on the pharmaceutical and industrial aspects of phenol and its derivatives. It is a purely accidental circumstance, of little interest to them, that its derivative, picric acid, can be used as an explosive in time of war.

What has been said of phenol applies also to many other organic substances handled by the dyestuffs maker. In Germany the organic chemists, who built up such a wonderfully successful dyestuffs industry, soon turned their experience in research technique towards the invention and perfection of new organic pharmaceutical products. In the result a large and flourishing industry was created and incalculable medical benefits were conferred upon the world. It is only logical to expect that the organic chemists in this country, having succeeded in dyestuffs manufacture, should apply their increased knowledge and experience of organic chemistry to the development of organic pharmaceutical substances. I.C.I. has already made some progress in this direction in its dyestuffs research laboratories and factories. Other British firms are doubtless doing so as well and the British Empire is now less dependent than formerly on German or other continental pharmaceuticals for the relief or control of tropical diseases.

With so much to be achieved in the field of organic chemistry in humanitarian and remunerative industrial directions, it is obvious that I.C.I. would not be prepared to waste time or money on poison gases and other lethal substances of almost negligible application save in time of emergency.

(c) *General Chemicals.*

(i) *Sulphuric Acid.*

In paragraphs 37 and 38 of Dr. Addison's Statement of Evidence,* he states that additional capacity of 400,000 tons of oleum per annum had to be created and quotes £750,000 as being the capital cost. Even under present peace-time conditions the cost would exceed £2,000,000.

He also states that the bulk of sulphuric acid used in peace-time is produced in the form of dilute acid, whereas for explosives manufacture concentrated acid (oleum) is required. The balance between these two forms has, however, radically changed since the War. During the year July, 1933-June, 1934, the members of the National Sulphuric Acid Association (representing 90 per cent. of the total sulphuric acid production of Great Britain) made 1,113,514 tons of acid, of which no less than 301,828 was oleum. During this year the oleum plants have produced at the rate of approximately 335,000 tons annually and this rate will, as the result of plant extensions at present proceeding, be increased to approximately 400,000 tons before next year.

Striking as is this increase in the capacity of British Chemical Industry for the production of oleum, from the point of view of national emergency, of equal moment is the change in the technique of the manufacture of nitric acid. During the War nitric acid could only be made by acting upon imported nitrate of soda with sulphuric acid, of which 1.5 tons was required for every ton of nitric acid. To-day the whole of I.C.I.'s requirements of nitric acid for their own use and for external sales are made from ammonia, synthesised at Billingham from coal, water and air. In this manufacture sulphuric acid is only employed for concentration purposes, and the total usage per ton of nitric acid is only 0.1 ton. As cordite, T.N.T. and other military explosives need approximately ton for ton of nitric acid in their manufacture, it will be seen that there is a reduction of 1.4 tons per ton of explosive in the sulphuric acid now needed. In consequence it seems reasonably certain that the difficulties as regards sulphuric acid supply described in Dr. Addison's evidence cannot recur in this country.

Reference must also be made to I.C.I.'s achievement in developing a process to produce oleum from British calcium sulphate. Over 40,000 tons of concentrated sulphuric acid were made by this process in I.C.I. plants in 1933, and to-day they are equipped to produce at the rate of nearly 90,000

* *Minutes of Evidence*, 4th and 6th Days, Appendix, p. 114

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tons annually of this commodity, using calcium sulphate as the source of sulphur. In the year July, 1933-June, 1934, nearly 460,000 tons of sulphur or sulphur-containing ores were imported into Britain as raw material for sulphuric acid production. In time of emergency no doubt this figure would rise appreciably unless the new I.C.I. technique were applied to substituting home-produced calcium sulphate for these importations.

(ii) *Chlorine and its Derivatives.*

Chlorine, either as such or in the form of bleaching powder, sodium hypochlorite, hydrochloric acid, chloroform, carbon tetrachloride and many other organic chloro-compounds, has been for many years, and is increasingly so, one of the most important and useful servants of the community and of the industries that sustain it. It is a basic raw material not only for dyestuffs, but for such important industries as the cotton textile and the paper trades, for which it constitutes the only bleaching agent. I.C.I. and its predecessors—the United Alkali Company and Casner-Kellners—have developed the electrolytic production of chlorine to a high degree of efficiency, and, through research expenditure and technical skill, have devised processes for the conversion of chlorine into compounds which find a rapidly increasing outlet for the purposes of industry.

It is well known that chlorine was used in the early days of the War for gas attacks, but became obsolete. It is also true that, like many other substances, in combination with various other chemical elements, it forms a variety of compounds, some of which have lethal properties rendering them capable of being used as weapons of offence in war time. Evidence of this kind has been laid before the Royal Commission and the suggestion has been made that some sort of State control should be exercised over chlorine production. Mustard gas contains such elements as carbon, chlorine, hydrogen and sulphur, and on this line of reasoning it would appear that the manufacturer of one or more of these elements is potentially a producer of mustard gas and a menace to the State—unless controlled.

But it is also an important fact, which should not be overlooked, that chlorine, apart from the important role played for purely industrial and peaceful purposes, affords, in the form of bleaching powder, the only known efficient means of decontamination after a mustard-gas attack, and so is a defensive weapon of the highest value, not only to the military, but possibly also to the civilian population.

It is only necessary to add that I.C.I. does not produce mustard gas, nor any other lethal gas for offensive purposes, and there is a long-standing instruction within the company that it is not to do so save at the direct request of the British Government.

To sum up, it is claimed that as a result of I.C.I.'s investment of very large sums of money in the manufacture of the peace-time requirements of industry and agriculture, there has been made available, technique, experience, plant and personnel which enables this country to obtain in war-time vital requirements for which previously reliance had to be placed on foreign sources.

13. The proposal to nationalise all factories engaged in the production of munitions could only be carried out at tremendous cost and would be economically unsound. Supposing for argument sake the Government proposes to enter the chemical industry (although it would be obviously unreasonable to single out this industry for the establishment of a State monopoly whilst other industries also essential to the State in emergency are to be allowed to maintain their private status), the chief problem to be faced is the export trade which under normal conditions is entirely commercial in its scope. The Government would then be competing with private

firms established in other countries. This would inevitably lead to international complications unless we assume that every manufacturing nation is going to act similarly. It is evident that the nationalisation of the chemical industry, or even a part of it, would involve the Government in establishing a chain of factories, many of which to a great extent would almost certainly stand idle for many years; and, when needed, be found to be hopelessly inefficient, if not practically out of date.

14. Even if the huge capital cost of nationalising the chemical industry is ignored, the question of personnel cannot be overlooked. It should not be assumed that executive and technical men who have been successful in commercial life would necessarily be willing to throw in their lot with a State monopoly. Generations of experience have been expended in establishing private enterprise on a solid foundation, and the lack of the incentive of commercial rivalry would tend to prejudice the maintenance of the same high standards of efficiency.

15. Consideration must also be given to the time which it would take to build up a State monopoly, even if its purpose were limited to the manufacture of essentially military equipment and materials. Many years must elapse before such an organisation could possibly be created and equipped with the scientific, technical and industrial knowledge necessary to make it entirely independent of other sources of supply. It is open to doubt whether in many cases a State monopoly would be able to achieve that end at all.

16. If, however, these arguments should not weigh with the Commission and the State is to be involved in heavy capital expenditure on the building of State factories designed exclusively for use in the case of war, then the Government should at the same time ensure that everything possible is done, by placing orders with industry, to encourage the maintenance of manufacturing experience, the continuance of research and developments arising therefrom which would prove to be of vital importance if, and when, the industries of the country have to be mobilised to deal with the enormous demand for supplies in time of crisis. In such circumstances, I.C.I. would, as it has always done, willingly throw the whole weight of its resources into the scale.

17. In considering the question of nationalisation, while it is agreed that national defence is of paramount importance, the Company holds the view that State-owned factories alone would be quite unable to meet the demands of this country and the Empire in the event of a great war.

18. The only satisfactory means of ensuring a sufficient output of materials of all kinds, necessary in case of war for our armed and auxiliary forces and for the protection of our civil population who may be exposed to almost equal risks, is by nation-wide conscription of industry as practised by the Ministry of Munitions in the period 1915-1918. In such a situation, there can be no doubt about the inadequacy of a State monopoly as a guarantee of national security. Much greater benefit and security can be obtained from the establishment of a permanent supervisory body armed with full powers, not to take away from private manufacturers their facilities for manufacture and substitute as an experiment a series of State monopolies, but, with due financial safeguards, to co-ordinate private manufacture and provide such auxiliary help as may be necessary by the erection of purely military factories where the demand is likely to be in excess of the capacity of private concerns. We have such military factories to-day in our dockyards and naval bases, and at places such as Woolwich, Waltham Abbey and Holton Heath; and it is suggested that it is for the Government to decide, after making a complete survey, how far it is necessary or practicable to lay down national factories to augment the production of industrial concerns. Under such a scheme it would be the duty of the supervisory body to take

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a census of production at periodic intervals, to work out plans for ensuring supplies of all necessary materials and equipment, to see that adequate "security" stocks of essential supplies were available, that transport arrangements and all the other services including recruitment of personnel, are properly catered for, and other activities which were, in fact, the responsibility of the Ministry of Munitions during the last war.

19. There should be no undue interference with private enterprise, but every possible means should be taken to encourage it to co-operate to the full with H.M. Government in order that this country may never be found unprepared. I.C.I. and its predecessors have always been in close contact with British Government staff on technical and manufacturing problems and have given freely and continue to give of the knowledge acquired through experiment and research.

20. With regard to the provision of arms to other nations, the present system of export licences ensures that H.M. Government is satisfied on military and policy grounds that the orders placed with British manufacturers are for reasonable quantities and may be safely executed. Perhaps, as suggested by the U.S.A. Government, there might be the added obligation to report all issues of export licences to an international body, the latter step having as its object to ensure a more rigid adherence to this system by all manufacturing nations than has obtained in the past. The purchasing governments would however, for obvious reasons, probably object to the publication of this information. No other system can provide better safeguards, and the only alternatives are for H.M. Government and other governments themselves to undertake the supply of arms to friendly nations, or abolish exports altogether. No proof has been adduced that it would minimise the possibilities of war or lead to a better understanding if the supply of arms by private concerns were abolished and governments became the vendors. I.C.I. is not aware that H.M. Government has granted loans for the purchase of munitions or subsidised exports of munitions in any way. It is pertinent to inquire, however, whether the same can be said of other countries, particularly of such countries where there is a state manufacture of munitions, the purchase of which is a condition precedent to the granting of a loan. Furthermore, if all exports were prohibited, this must necessarily lead to much wider-spread manufacture by all nations, in order that each may be able to produce its own requirements. This in turn would give greatly increased capacity for production of war materials, much of which for efficiency reasons would be kept going. The temptation to manufacture beyond defensive requirements might become irresistible.

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2579. *Chairman:* That is the end of the Imperial Chemical Industries' statement. Now, Sir Harry McGowan, will you make your statement?

Sir Harry McGowan: As chairman of Imperial Chemical Industries, Limited, I welcome the opportunity of appearing personally before this Royal Commission.

I am accompanied by two of my colleagues on the board, Mr. H. J. Mitchell and Mr. John Rogers, and, in addition, I have with me of our staff, Colonel E. F. Creswell, Mr. James Laing, Mr. C. S. Robinson and Mr. L. W. B. Smith.

They, of necessity, are more familiar with the details of the munitions side of our business and will be able to answer any questions which you, Sir, or your colleagues, may care to put to them. I shall, therefore, confine myself to the broad questions of policy and general principles.

If you will look at the printed outline of our evidence,* you will observe that in the opening

paragraphs we give facts which I trust will, once and for all, disprove the widespread fallacy that Imperial Chemical Industries, Limited, is essentially an armaments firm.

The exact contrary is the case; munitions represent 1.4 per cent. of the total profits of the company; or, putting it another way, of the amount we pay in dividends, only one-seventieth comes from munitions. Our interests, therefore, obviously lie in the largest measure in products which are outside your definition of armaments; and for the prosperity of the company we desire nothing more than a state of tranquillity, in order that we may continue to expand our peace time industries.

With regard to our munitions manufacture, small as it is, I want to emphasise as strongly as possible that this is conducted with the full knowledge of the government departments concerned. I will go further and say that these departments are not only given the fullest facilities for knowing exactly what we are doing, including quite often the free transfer of technical information, but developments in our business are sometimes made at their request, and if the slightest doubt arises in our minds whether any particular course should be followed, we do not hesitate to consult their wishes in the matter.

You, Sir, will understand that I am speaking with a due sense of the responsibilities of my position, and I must add that I am imposing upon myself considerable restraint. Direct charges against my company during this Inquiry have been few; indeed, in the case of one or two witnesses, the company has been complimented on its efficiency. Other witnesses have asked you to call one person and another, and suggestions have been made that you should inquire into this and that. Such suggestions contain an innuendo that there is something, always undefined, which if you will only search long enough you will find, to support the allegations which have been made. We are prepared to deal with all or any of these matters, however trivial or even ridiculous some of them may seem, just as the Commission may desire.

In the meantime, I may perhaps deal with one of the suggestions that have been made. You have been asked to call for the agreements contained in a list,* which it was alleged was a list of representative documents. There were cited 38 such documents. The facts are that of these 38, 18 are non-existent as agreements. Of these 18 four refer to investments in explosives companies but only one of these investments is in a company which makes military as well as industrial explosives, and that is in Czechoslovakia. I should also like the Commission to know that of the remaining 20 agreements, four only have any reference to munitions.

2580. *Chairman:* May I interrupt for one moment? You say "There were cited 38 such documents. The facts are that of these 38, 18 are non-existent as agreements." When you say that 18 are non-existent as agreements, does it mean that they are not signed agreements, but they are understandings?

Sir Harry McGowan: It means that they are not agreements dealing with munitions, either technically or commercially.

2581. *Chairman:* I am rather puzzled by this. First of all you say that 18 of them are non-existent and then you say "Of these 18, 4 refer to investments." It is not plain to me what that means.

Mr. Mitchell: Of the 38 documents cited in this memorandum, 18 are non-existent. The words "as agreements" should not be there.

2582. *Chairman:* And then you go on to say "Of these 18."

Mr. Mitchell: That is a mistake. Eighteen are non-existent. There are no agreements existing, but we have investments in four companies, reducing the non-existent figure to 14.

* See p. 439, supra.

* See Appendix 1, p.465.

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2583. *Chairman*: You mean there are no agreements.

Mr. Mitchell: There are four investments but they are non-military investments.

Sir Harry McGowan: It is within your knowledge, Sir, that long before this evidence to which I am referring was tendered to you, you asked to be furnished with particulars of our relevant agreements, and this information was prepared and willingly furnished to you.

I also resent a little the suggestions that my company or any individuals connected with it are actuated by base motives in supplying such materials as friendly nations, often unequipped with their own factories, need. It is sufficient, I think, for me to remind the Commission that such supplies are only made with the full knowledge of the British government, and only under British government licences.

Similarly, I deny that my company has ever done anything to hinder the British or any other government's efforts for universal peace, or has suggested to any foreign government that they should buy more than they themselves think they need.

I now come to a point which is, I think, worthy of notice. It is to be expected that those whose political faith leads them to believe that the socialisation of all industry would be for the benefit of the nation should seek to discredit the part which private industry played in the last war. I do not for one moment question the sincerity of those who hold that view, nor do I complain of their supporting it by such evidence as has already been tendered to you. I venture to suggest, however, that you have already heard, and will hear more, evidence which will convince you that it is misleading to suggest that private industry failed the country in the War. That mistakes were made, that miscalculations as to quantities required and which could be available at a given time, took place, and that developments were unforeseen, or not fully anticipated, must be admitted by everybody. Such mistakes and miscalculations were common to the services, politicians, state-controlled factories and private enterprise. The demands made on private industry were peculiar and colossal, and I would remind the Commission that it was from private industry that the Ministry of Munitions was mainly recruited. I claim for the companies which are now associated in Imperial Chemical Industries, Limited, that they lived up to their promises, and that the thanks which were accorded them for their efforts were fairly earned.

In considering under your terms of reference this question of the suppression of private manufacture of arms, it seemed to me that the Commission would want to know something of the part which chemical industry is called upon to play under modern conditions of war when any first-class nation has to defend itself.

In the hope that it may assist you, therefore, I have had set out in paragraph 12 of our evidence,* a brief statement, to which I call your special attention, of how such a chemical industry as is available in Great Britain, can contribute towards national security when in pursuit of its normal peace time activities. The Commission will understand that I felt a little diffidence in stating these facts because they must inevitably throw a high-light on the work of my own company, but I do not see how you can obtain a complete picture of the position without such information, and my technical experts will be very pleased to give any further information you may require, or to answer any questions on the information already given.

I can put the matter shortly by saying that here you have an example where very large sums of money, from private individuals and not from the state, have been invested for the manufacture of peace time requirements of industry including agri-

culture. In the result, there is available in this country to-day, the technique, experience, plant and personnel which enables this country to obtain in war time the vital requirements for which previously we had to rely on foreign sources. With the utmost emphasis of which I am capable, I beg the Commission to pause before they recommend anything which would destroy this vital asset to the country's safety.

May I again emphasise the matter of personnel. The successful meeting of emergency conditions depends largely on the required man power being available. This involves the adequate dilution of skilled management and skilled labour. At our Ardeer factory in Scotland, for example, we have quite a number of staff and workers now engaged on non-military products who have passed through the military section and who, therefore, can readily and intelligently return to such work, the staff having in the interim been kept in touch with military developments. At Witton, Birmingham, we have many working on sporting ammunition who by their training would be invaluable on military small arms. I submit that dilution as per the examples now set forth, and these are only indicative, is not possible in relation to state military establishments.

If I am to be of any further assistance to the Commission I think you would probably ask me to address myself to the question of the cost involved and the consequences which must follow if the proposal to nationalise all factories engaged in the production of all materials of military importance was accepted.

I think what has been said in paragraph 12 of our statement† goes to show that although your Inquiry is limited to a defined range of products, there are many substances produced by the chemical industry of great importance in peace time, and a great deal of machinery used in their production, which, if the nation is involved in war, are of vital importance.

I want to assume, solely for the sake of argument, that the government of the day proposes to enter chemical industry.

My first point is that I think it would be quite unreasonable for the government to select this industry for a state monopoly while other industries, equally essential in times of emergency, are allowed to maintain their private status. Logically, the government must select all or none.

If we ignore this point, however, we then come to another difficulty which is even more fundamental, that is, the problem of export trade. Let us imagine for one moment that the government is in control of chemical industry. In other countries, where private enterprise still remained, the traders in those countries would be competing for the world markets. One of their competitors would be the British government, who in peace time would have to sell the products of British chemical industry in all parts of the world against the private traders in foreign countries.

I would not presume, merely as a business man, to visualise the international complications which must ensue, but of one thing I am certain and that is that these complications must inevitably embarrass any government when entering into those commercial treaties with foreign countries which have become part of the government's policy.

It was made perfectly clear at the Ottawa Conference that the constituent parts of the Empire desired to consider how trade could be increased within the Commonwealth. It was made equally clear that this did not preclude our making arrangements with foreign nations who desired to trade with us on a basis of equality. Since Ottawa, various agreements have been made with foreign countries. In most of these agreements official notice has been taken of subsidiary agreements made

* See p. 440, *supra*.† See p. 440, *supra*.

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between various industries in each of those countries and corresponding industries in Great Britain. If the British government itself had been a trading body making those subsidiary agreements, I say unhesitatingly it would have caused the government great embarrassment, and I doubt very much whether any of those treaties could have been completed in their present form.

I would like to test this proposal a little further. It involves one of two things. Either you take over the existing factories, in which case, presumably, compensation would be paid for the factories acquired; or you set up a chain of national factories, many of which would almost certainly stand idle for many years. In either case the government is involved in very considerable expenditure. That is not the worst feature. Such factories, whether acquired or built, unless they were operated in peace time in competition with foreign manufacturers, could hardly in time of crisis be expected to be efficient and up to date.

The Commission has had evidence, designed to show the practicability of the prohibition of the private manufacture of and trading in chemicals and explosives, and the institution of a state monopoly. In my view none of this evidence shows any real understanding of the problems of chemical and explosives manufacture, but appears to be based on printed formulae and published processes.

But supposing, again solely for the sake of argument, we ignore the huge capital cost of nationalising the chemical industry, and the many years of practical experience gained by those engaged in the industry, we are still faced with the problem of personnel.

It has been very truly said that business men during the last war threw themselves wholeheartedly into the service of the state. From that it is assumed that in peace time, if the state assumes control of chemical industry, or any part of it, executive and technical men who have been successful in commercial life would necessarily be willing to throw in their lot with a state monopoly. This I believe to be a complete fallacy. The industrialists of this country have had handed down to them generations of experience which has been expended in establishing private enterprise on a solid foundation. To them, the incentive of commercial rivalry has led to very high standards of efficiency. To remove that commercial rivalry in times of peace would leave them without the mainspring of their actions and would leave the country in time of war with less efficient manufacturing units.

I should be lacking in my duty if I failed to point out to the Commission the time factor involved in building up a state monopoly. To create and equip such an organisation, even if it were within the power of the state to do so, must involve a lengthy period.

I can imagine, however, that you may say that, so far, my criticisms have been merely destructive, but I believe it was necessary to point out the consequences which, in my opinion, would follow state control in order that you may have a complete picture before you. With that picture in mind, I desire to make one or two constructive suggestions.

In view of what I have already said, and the confidential figures we have furnished showing that undue profits exist only in the imagination, it will not surprise you if I add that I do not criticise those persons who are desirous, in their own words, of "taking the profit out of war", by which I suppose they mean making profiteering in war requirements impossible. If one looks at the list of munitions which the Commission is considering, one cannot help being struck by the variety in character. The production of the items cited involves many differences in the capital employed, research expenses, wages, materials and explosion risk. Therefore, it does not seem to me that it would be possible to evolve one simple scheme to control the profit on all those items.

If you ask me to state in general terms what is my position with regard to the control of profits on munitions of war, it is this. I am responsible to my shareholders for providing a fair return on the money invested. I desire no more and no less. I am prepared at any time that my own staff shall discuss, with representatives of the government, our costs of production before they place an order with us, and that we shall agree with them what is a fair return on the capital involved. Obviously, this is a question, the details of which in the public interest we could not discuss to-day, but if the Commission desires me to go into further detail on some other occasion, I shall be only too pleased to do so.

With regard to the export trade in munitions, I would remind you that, as I have already said, this business can only be taken subject to the government allowing such export, and has to be secured in the face of international competition. If and when this approval is given, I conceive it to be the duty of every British industrialist to strive to obtain a fair share of that business in order that the British industry may remain established in this country, to find employment for our people and to keep in action plant and personnel which are essential to national security.

While on the subject of the export trade in munitions, may I say that I think the present system of export licences is very useful. It enables the government to be satisfied that orders placed with British manufacturers by foreign countries may be safely executed. In my judgment, no other system provides better safeguards. It seems to me that if this system of licences were not maintained, the only choice which apparently remains is between the abolition of exports altogether or the British government and other governments would themselves have to undertake the supply of arms to friendly nations.

Linked with this question of export of munitions is a suggestion that governments have granted loans for the purchase of munitions, or in some way have subsidised the export of munitions. I am not aware that the British government has ever done anything of the sort, but I question whether the same can be said of other countries, particularly those countries where the manufacture of munitions is largely a state monopoly.

With regard to the total prohibition of all exports of munitions, I would point out that this must inevitably lead to each nation setting up its own munition factory. In this way increased capacity for production would result, and the maintenance of that plant in working condition might lead to production in excess of defensive requirements.

I have already indicated as clearly as I can the difficulties which would be encountered if it were decided to establish a state monopoly for the manufacture of munitions. If, however, the anticipating of emergency requirements involves the building of further state factories ready for operation if and when unfortunately the need arises, I would suggest that in normal conditions the government should continue to place orders with private industry to encourage the maintenance of manufacturing experience. It is also necessary that industry should be encouraged to continue research, and perhaps of even greater importance, that the developments arising out of such research should be proceeded with in order that when the industries of the country have to be mobilised in time of crisis, the results of this work may be at the disposal of the government.

It is perhaps unnecessary for me to add, in view of the past record of I.C.I., that if such a plan were adopted, we should willingly throw the whole weight of our resources, as we have always done, in assisting the government.

It was essential during the last war to have a nation-wide conscription of industry as was practised by the Ministry of Munitions. I believe it will be no less essential if we ever have to face another such war. The real foundation of the design and provision

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[Continued.]

of implements of modern war strength is the technical and production strength of the mechanical, metallurgical, engineering and shipbuilding industries which exist primarily to provide for the civil peace time needs of the nation, and any general policy which attempts to segregate the so-called armament provision from the industrial machine of the nation is foredoomed to failure and, in my judgment, a state monopoly would be totally inadequate as a guarantee of national security.

My suggestion, therefore (as indicated in paragraph 18 of our statement*), would be that there should be established at once a permanent supervisory body which would have to be armed with full powers and which would, with due financial safeguards, co-ordinate private manufacture and provide such auxiliary help as may be necessary where the demand is likely to be in excess of the capacity of private concerns.

If this suggestion were adopted, the procedure would be that the government would make a complete survey of the capacity of governmental and industrial concerns, and, after that survey, the government would then decide what policy should be adopted.

The supervisory board would be required periodically to take a census of production and would have to work out plans for ensuring all necessary supplies. They would have to see that adequate stocks were available, and that transport and all other services, including personnel, could be provided at short notice. They would, in fact, be responsible for doing the work which in the last war was done by the Ministry of Munitions. Their function would be to encourage industry to co-operate in the fullest possible manner with the government.

In conclusion, I think it may be convenient for the Commission if I summarise the salient points of our evidence.

1. The proportion of the I.C.I. munitions business to the whole is 1.8 per cent., and of the profits 1.4 per cent. Our interests are, therefore, obviously allied with peace conditions, and we are agreeable to such control of munitions profits as will, as hitherto, only provide a fair return on the capital involved. Detailed examination of our agreements and investments will prove that neither at home nor abroad are we by such channels interested materially in munitions.

2. We have not been parties to any "ring" but on the contrary have often found purchasers playing off one manufacturer against others with consequent unduly increased stringency of specifications and depression of prices to unreasonably low levels.

We have purchasers to estimate their own demands and have taken absolutely no part directly or indirectly in influencing against peace efforts.

3. For I.C.I. companies we claim that their services in the war period were acknowledged as invaluable and satisfactory. We manned quite a number of the largest national factories. We have had and still have idle plant at the service of the nation without subsidy of any kind. We prefer not to enter into controversy on the relative costs of private and government manufacture as to the best of our knowledge the requisite data on comparative lines are not available.

4. A state monopoly will be costly and take a long time to establish. On the other hand in many directions our industrial resources are adaptable to military needs and are a valuable asset to national security.

To have a state monopoly of the chemical industry of this country engaged in exports in competition with other countries has in our opinion only to be mooted to reveal an untenable position. We appreciate the work of the British government factories and their research, but claim that we also have made valuable contributions and often freely transfer to them our technical results, the British government always having the first, and if it desires, the exclusive claim to these.

* See p. 442, *supra*.

We have personnel experienced in military productions and now engaged on non-military work who with others will be available as in the War for transfer to emergency factories but who might not readily accept permanent government employment.

5. Exports of munitions have been adequately controlled in Great Britain by the licensing system. Our exports, while limited, in the absence of orders from the British government have been the means of keeping certain types of plant alive, although not filled, and also have kept a nucleus of personnel active.

It is not in Great Britain, but often in countries where there is a state monopoly, that loans have been granted to other countries to be taken in munitions. To forbid exports is to force the creation of factories where there are none.

6. Our considered view, and the concrete proposal which we make for normal periods, is that there should be state factories as at present, together with private industry receiving a reasonable share of orders (profit controlled). They should both be guided by an authoritative body which has surveyed the whole field; this body would be a shadow Ministry of Munitions. Behind such a plan I.C.I. will throw its whole resources. For war time we visualise nation wide conscription of industry.

This concludes my personal statement, and as I said in opening, I shall be glad to answer questions of general policy and principles, leaving if you please, questions on detail to my colleagues.

2584. *Chairman*: The next branch of the investigation is to deal with the answers to the Commission's questionnaire. There are one or two questions I should like to ask you upon your general statement and upon your own personal statement, Sir Harry, but they are only anticipatory of the questions that will be asked later. I should, however, like to clear these points up, if I may. You have dealt with the question of taking the profit out of war?

Sir Harry McGowan: Yes.

2585. *Chairman*: You have dealt with the question of excessive prices upon government orders, have you not, and have suggested that you are willing to give the government any access to your costings, and so forth, to ensure that you shall not be charging the government excessive prices?

Sir Harry McGowan: Yes.

2586. *Chairman*: Those are government orders?

Sir Harry McGowan: Yes.

2587. *Chairman*: Then later on you come to the export trade?

Sir Harry McGowan: Yes.

2588. *Chairman*: I want to ask this about the export trade. Is there keen competition in the export trade for the goods that you export?

Sir Harry McGowan: Competition takes care of those prices, Sir.

2589. *Chairman*: Competition?

Sir Harry McGowan: From various manufacturers like ourselves.

2590. *Chairman*: Which in itself will keep down the prices?

Sir Harry McGowan: Oh, surely, Sir.

2591. *Chairman*: Then when we come to deal with the agreements—I understand that I am to ask Mr. Mitchell about the agreements—but is it not the fact that all these agreements that you have made limit the competition by defining areas, and so forth?

Sir Harry McGowan: We have no agreements, Sir, on military supplies.

2592. *Chairman*: Well, is that quite accurate? *Sir Harry McGowan*: Oh, yes. We have an agreement with Du Pont as regards selling in particular areas, but nothing to do with the exchange of technical information regarding military supplies.

2593. *Chairman*: Very well, we will leave that for the moment; but your view is that there is keen competition at present in peace time with regard to your export trade?

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Sir Harry McGowan: Very keen.

2594. *Chairman:* Well, that deals with that. The next question I wanted to ask was this. You deal with the licensing question, and you say that is efficient and sufficient. Do you export any large quantities of your manufactures under a general licence?

Sir Harry McGowan: No; a licence is applied for and given for any particular order we get. It is not a blanket licence.

2595. *Chairman:* It is not a general licence?

Sir Harry McGowan: No, it is specific.

2596. *Dame Rachel Crowley:* You sometimes have a short-term licence, I suppose, Sir Harry, do you not?

Sir Harry McGowan: Yes, covering the particular order, Madam.

2597. *Chairman:* The only other question I wanted to clear up in my mind on your statement is with regard to this supervisory body. Your suggestion is, as I understand it, that a supervisory body should be set up at once?

Sir Harry McGowan: Yes.

2598. *Chairman:* So as to permit the machinery to come into operation immediately the emergency arises?

Sir Harry McGowan: Yes.

2599. *Chairman:* I follow that. Then there are one or two questions which I wanted to ask you on your general statement before I come to deal with the questions and answers. The first is on paragraph 10*, about the comparison of costs between government manufacture and private manufacture. You refer there to an extract from the report of a Committee of Inquiry which indicates that at the time they are referring to there was no sufficient costing system at Woolwich; but we have been down to Woolwich, and we have inquired into that, and supposing at the present moment that there is an efficient costing system at Woolwich, is there any ground for suggesting that like cannot be compared with like? Does it depend purely on the costing system?

Sir Harry McGowan: I think it depends on the basis of the costing system. At Woolwich you have an entirely different basis of costing from what we have; but in order to be compared it must be comparable, and of course it depends on the volume of the business going through a plant.

2600. *Chairman:* There was one other question which I wanted to ask. At the end of paragraph 12 you say: "It is only necessary to add that I.C.I. does not produce mustard gas nor any other lethal gas for offensive purposes, and there is a long-standing instruction within the company that it is not to do so save at the direct request of the British government." Does that mean that no mustard gas or other lethal gas has in fact been produced since the War at all by I.C.I.?

Sir Harry McGowan: Yes, that is so.

2601. *Chairman:* There has been no export?

Sir Harry McGowan: No export, Sir.

2602. *Dame Rachel Crowley:* That, of course, does not cover research, obviously?

Mr. Rogers: None of our research people are busy at all on devising poison gases for use in war.

2603. *Chairman:* Of course, that does not cover the materials out of which gas can be made; but I am only referring to the actual manufactured gas?

Sir Harry McGowan: That is correct, Sir.

2604. *Chairman:* Then we will go to the questions. I will deal with that part of the evidence myself, and I will go through it with you. I will just explain that the questionnaire which we addressed to you was the same questionnaire which we addressed to Messrs. Vickers. It is the questionnaire of the 23rd April, and your answer eventually came on the 4th October, 1935. You say:

"With reference to the accompanying letter of to-day's date, which is the formal answer to your

communication of 23rd April, 1935, I must refer to the various documents which have been sent therewith, in order that I may indicate those which are of a private and confidential nature.

"For the sake of clarity and to show how the answers to Questions Nos. 1 and 2 have been reached, the figures from which these answers have been derived have been embodied in one statement marked 'A'."

Now, Questions 1 and 2 were: "1. The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war. 2. The proportion of the turnover in each of the last five years, representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire and (c) foreign orders."

You answered that in this way on the next page: "Question No. 1: The proportion of the total turnover in each of the last five years was, in percentages, 1.6, 2.3, 2.0, 1.6, and 1.5.

Then you answer Question No. 2 in the same way fully, and you have also given us the make-up by which you arrive at those figures; and inasmuch as you say that that make-up includes the details of your whole business, commercial as well as the munitions business, you say that it is reasonable that we should allow you to treat the make-up as confidential. We agree to that. It seems reasonable. You have given us an answer to the question, and in order to assist us you have given the make-up out of which you arrive at the conclusion so that we can test it?

Sir Harry McGowan: Yes, Sir.

2605. *Chairman:* Then I will read on. "The method adopted has involved the disclosure to the Commission of certain figures relating to all our activities, e.g., our total turnover figures. I believe you will agree it will be unnecessary, and it certainly would be misleading and prejudicial to the company's interests, for such figures to be made public. These figures are, therefore, given to the Commission on the understanding that they are treated in strict confidence and that any questions based on them which the Commission desire to ask shall be asked in camera."

Then Question 3 is: "The estimated value of plant" and the answer is £1,316,436, and you say that details of the total figure are shown in A1.

Then you go on to say: "In answering Question No. 3 we have attempted to estimate the value of property and plant employed in military products and have furnished a table which also contains confidential figures. The total figure cannot be regarded as anything more than a careful estimate. Its preparation has involved an enormous amount of work, but I must nevertheless make it clear to the Commission that it would only be possible to ascertain the exact value of the plant by having an independent valuation by competent chemical engineers. This would entail the expenditure of much more time and money". That again is a case in which you have given us the answer, and given us the way in which you have arrived at it?

Sir Harry McGowan: Yes.

2606. *Chairman:* But you wish the way you have arrived at it to be confidential to us, as a means of testing the correctness of your answer; that is right, is it not?

Sir Harry McGowan: Quite correct.

2607. *Chairman:* Then you go on to Question 4, "The amount of declared profits . . ." and so on, and you give the figures, and you say the published accounts for five years are marked "A2". Those were the published accounts?

Sir Harry McGowan: Yes.

2608. *Chairman:* Well, we have not printed those, because they are generally known.

Sir Harry McGowan: Yes, they are public property.

2609. *Chairman:* They are published as a matter of course?

* See p. 440, *supra*.

† Appendix 2, p. 466.

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[Continued.]

Sir Harry McGowan: Yes.

2610. *Chairman:* Then Question No. 5 is: "The average number of employees engaged in each of the last five years . . ." You have given us that, and there is no question of asking that it shall be treated as confidential there.

Going to Question 6, that is the question asking: "The firm's capacity for expansion for purposes of the production of arms and munitions of war . . ." and then you give us a long statement which you ask shall be treated as confidential, and you say that you are sure the Commission will realise that it should be treated as confidential. That is generally accepted, and I think will be accepted in view of the last document sent to us which I referred to this morning.

Then Question 7 is: "Particulars of any agreements with other firms engaged in the production of arms and munitions of war, stating the names of the parties, British and foreign, to such agreements". Now, in reference to the communications which were made in those letters, I wish to call attention to the fact that this question is not confined to asking for information about agreement with firms in reference to munitions. It is a general question. In answer to that question, both Vickers and yourselves have given us full information which includes reference to agreements which have nothing to do with munitions, and that is one of the reasons why we have treated the claim for confidence as one which we should accept, because it includes reference to agreements which have no reference at all to munitions, and were only given because of the general nature of the whole question. Your answer to that is this: "I should be grateful if the information furnished in answer to Question No. 7 could also be regarded by the Commission as confidential because a public disclosure would obviously be unfair to our partners in these agreements". Now, in regard to these agreements—and I say this because of the communications that have been made to us—you claim confidence on the ground that it would be unfair to your partners. Well, I am not sure that that is a good or sufficient answer to this question, but there are other answers, one of which is that a great many of these agreements are of no materiality to the question which we have to consider?

You go on: "We have observed, however, that the evidence of the Union of Democratic Control contained a list of agreements. We shall give in a separate document," which can be made public, details which we consider relevant concerning these particular agreements". That is attached to this document, and I shall have to go into that at some length. I understand Mr. Mitchell is proposing to answer that?

Sir Harry McGowan: Yes.

2611. *Chairman:* Then Question No. 8 is: "Details of the firm's present holdings of the capital of other firms . . ." and so forth. In regard to that you say: "The very exhaustive details submitted in reply to Question No. 8 are also by their very nature of a confidential character, and I trust that my requests that these shall be so regarded by the Commission may be granted". Well, there is a very full statement which enables the Commission to go through these various investments and decide whether there is any real materiality in making any of that information public, and we do not think there is, in the same way as we dealt with the question in the case of Messrs Vickers.

Then No. 9 is: "The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war", and you have set that out in full.

I think I have dealt with the answers now, and I did it in this way because I want to make it plain as to the way in which the Commission are dealing with these matters.

The questions which I want to ask are mainly concerned with these agreements. I will take first of all, if I may, the list* which you have taken from the statement of the Union of Democratic Control. They set out a list of 38 agreements, or suggested agreements, and that list to some extent agrees with the list which Viscount Cecil supplied† of documents which he wished us to look into. I think that this list from the Union of Democratic Control covers all the documents which Lord Cecil asked us to look into, and in this list of 38 I have already asked for an explanation of what the meaning of four of the 18 existent and four non-existent agreements means. Would Mr. Mitchell point out to me which are the firms which he is referring to when he says they are non-existent?

Mr. Mitchell: The four non-existent are these: No. 5, No. 8, No. 10, and No. 15. Those are all companies in which we have a financial interest, but no existing agreement.

2612. *Chairman:* If I look into your confidential schedule of investments I shall find these?

Mr. Mitchell: If you look in the confidential schedule of investments you will find these all cited as investments.

2613. *Chairman:* The next question I want to ask is this. Of these 38, are any of them exhibited in the proceedings in the Inquiry in the United States?

Mr. Mitchell: No, 1.

2614. *Chairman:* Is it No. 1; are you sure?

Mr. Mitchell: Yes, No. 1, and No. 2. The only two of which we have direct knowledge are No. 1 and No. 2.

2615. *Chairman:* Yes. But you will agree that it is not right that we should be asked to treat those as confidential documents?

Mr. Mitchell: No.

2616. *Chairman:* They have already been published in full in America?

Mr. Mitchell: Yes.

2617. *Chairman:* But you have produced them in your confidential schedule?

Mr. Mitchell: Yes, but I see no reason why they should not be published, as they are all public property.

2618. *Chairman:* You have made too wide an exception. There is no reason why they should be excluded in your case?

Mr. Mitchell: No.

2619. *Chairman:* Now, have you got the American proceedings, Part 5. Will you turn to page 1297, Exhibit No. 461. First of all I want to know who writes this, and to whom. It is signed by Mr. Pickard, and is addressed to the Executive Committee, from the Chairman of Foreign Relations Committee.

Mr. Mitchell: Mr. Pickard was then the Chairman of the du Pont Company's Foreign Relations Committee, and he is addressing the letter to the Executive Committee of the Company.

2620. *Chairman:* Who are the Foreign Relations Committee?

Mr. Mitchell: It is a section of the du Pont organisation.

2621. *Chairman:* And who is it written by?

Mr. Mitchell: By Mr. Pickard, the head of that section, to the subsidiary Board of Directors, so called the Executive Committee.

2622. *Chairman:* I see. Then it purports to show Imperial Chemical Industries and its subsidiary companies and investments and contractual interests in the world market, and then it is divided under headings, "Direct I.C.I. Companies", "Indirect I.C.I. Companies", "Foreign Investments", and "Foreign Alliances". The detail of this information is not included in your confidential statement?

* Appendix 1, p.465.

† See Minutes of Evidence, 1st Day, p. 31.

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[Continued.]

Mr. Mitchell: You will notice that this document is dated March 7th, 1928, this document from Mr. Pickard, and we have given you the up-to-date information. The information which is given here is not correct.

2623. *Chairman:* It is no longer correct?

Mr. Mitchell: Yes, that is so. I am not prepared to say whether it was or whether it was not at that date. It is now quite incorrect.

2624. *Chairman:* Do I understand you to say that in preparing your confidential schedules it is now corrected, and the reason why a great deal of this information does not appear in this is because the information is no longer correct?

Mr. Mitchell: Yes, that is the exact position, Sir.

2625. *Chairman:* Some firms have disappeared, and the investments have changed?

Mr. Mitchell: We have had no regard to the American proceedings in providing you with the information you want. We have given you the up-to-date information.

2626. *Chairman:* I do not like the words "We have had no regard to it". May I take it that the information you have given us is correct?

Mr. Mitchell: Absolutely.

2627. *Chairman:* The correct information is here? The information which is in this Exhibit is either no longer available, or is incorrect?

Mr. Mitchell: That is so.

2628. *Chairman:* Very well, I understand, and I can disregard that. Then the next question is about the du Pont agreements. I want to go into the question of these du Pont agreements. That is your main selling agreement, is it not, with any foreign company?

Mr. Mitchell: Of military explosives it is the only one, except I think a small thing with Hotchkiss. We make their cartridges for them.

2629. *Chairman:* I should like to deal with du Pont, and with this Hotchkiss one, if that is also a selling agreement?

Mr. Mitchell: No, it is not, but I did not want to leave it unmentioned. We make for them.

2630. *Chairman:* I find references in the papers that have been before me, in the American papers, to a great many agreements with du Pont, dating back to a long time ago; but have all those agreements been displaced by some later agreement?

Mr. Mitchell: Yes.

2631. *Chairman:* What is the date of the latest agreement?

Mr. Mitchell: The first agreement was entered into in 1897, then there was a subsequent agreement in 1897, there was one in 1910, one in 1913, and then we had one in 1926 and one in 1929, and the latest one supersedes all those understandings.

2632. *Chairman:* That is the one of the 10/10/32?

Mr. Mitchell: Yes, 10/10/32.

2633. *Chairman:* May I take it that it now embraces your entire arrangements with du Pont?

Mr. Mitchell: That does, Sir.

2634. *Chairman:* That appears on page 1,302 of this book?

Mr. Mitchell: Yes.

2635. *Chairman:* Is it correct that that covers the whole of your arrangement existing at the time with the Pont de Nemours Company?

Mr. Mitchell: I think there is a little confusion here. I thought you were dealing with the main patents and processes agreement. There are two agreements concerned here. One is the patents and processes agreement, and one is the sales agreement. The dates I gave you before relate to the patents and processes agreements, but if you are dealing with the sales understanding, our original arrangement was in 1928 or 1929, and then it was superseded by this one, and this is the one that is for the moment supposed to be operated.

Secretary: That is also dated the 10th October, 1932.

Mr. Mitchell: Yes, that is the sales agreement, but the patents and processes agreement is a different agreement.

2636. *Chairman:* You have two agreements?

Mr. Mitchell: Yes, and the one we are dealing with is the one in front of us.

2637. *Chairman:* We will take Exhibit No. 465. That deals in paragraph 7 with the products which it covers, does it not?

Mr. Mitchell: Yes.

2638. *Chairman:* It deals with "Nitro-cellulose powders, cordite, other nitro-glycerine powders, trinitrotoluene, other simple and combined explosives for naval and military uses, nitro-cellulose for manufacture of propellant powders, and other chemical accessories for use in manufacture of naval and military powders, for example, centralite, diphenylamine, etc."?

Mr. Mitchell: Yes.

2639. *Chairman:* Then you define sales areas, and you adopt a centralised selling arrangement, and you make proposals to govern the dealing of these two companies in these proportions over these areas, and for arranging prices, and so forth?

Mr. Mitchell: Between the two parties.

2640. *Chairman:* What is the other class of agreement with du Pont?

Mr. Mitchell: The other class of agreement is the patents and processes agreement, under which we exchange territorially patents and processes as developed by the company. In other words, it is a licensing arrangement under which they exchange rights with us in certain given territories for our rights, and there is a certain common territory in which we both have equal rights. That agreement excludes military propellants altogether.

2641. *Chairman:* You mentioned the Hotchkiss agreement. I should like to know the nature of that?

Sir Harry McGowan: Perhaps Colonel Creswell could answer that.

Colonel Creswell: The Hotchkiss agreement is in effect an agreement between ourselves and three other manufacturers to divide the orders for certain Hotchkiss ammunition. Hotchkiss evolved a heavy machine gun some 10 years ago, of about $\frac{1}{2}$ -inch calibre, and they came to us to ask us to make the ammunition. Eventually some French manufacturers came in, and in order that Hotchkiss themselves should not submit inquiries to each of us in turn, Hotchkiss asked us to arrange to divide these orders between us. That is all it is.

2642. *Professor Gutteridge:* Does that mean that these four companies hold a monopoly of ammunition for the Hotchkiss gun?

Colonel Creswell: That is what Hotchkiss wish to do.

2643. *Professor Gutteridge:* For what reason?

Colonel Creswell: Hotchkiss are satisfied that we make the ammunition which will function best for their gun.

2644. *Chairman:* I understand those are the only two sales agreements you have got?

Mr. Mitchell: The only two that come within the ambit of military supplies. We have numerous others industrially.

2645. *Chairman:* I am only speaking of military supplies. You have given us the details of a number of other agreements which refer to reciprocal rights of using patents, and defining areas, and so forth. We have got the particulars of those, but there seems to be an impression that if you or any other English company desired to evade the licensing regulations, or desired somehow to cover up the real destination of some of your products, it is necessary that you should have an agreement with some foreign company—an existing agreement—to enable you to do so; but of course if you wished to do so you could without any previous agreement enter into an arrangement with some foreign firm in order to take the order. I am not suggesting you would do so, but I mean it is quite possible to do it?

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[Continued.]

Mr. Mitchell: Yes, it is quite possible to do it.
2646. *Chairman*: It is quite as easy to evade the law without a previous agreement as it is with one?

Mr. Mitchell: I should suggest it is easier. When you have an agreement, you have a partner.
2647. *Chairman*: The existence of an agreement for the interchange of licences does not necessarily deal with the danger which is supposed to exist with regard to evading the law, or as to the real destination of a consignment?

Mr. Mitchell: No.
2648. *Professor Gutteridge*: Are you ready to export to individuals or companies, or only to governments?

Mr. Mitchell: Are you talking of military supplies?

2649. *Professor Gutteridge*: Yes.

Mr. Mitchell: It is a question of the government giving us the right. I do not think there is any restriction on the person to whom we can export if the government will give us the authority.

2650. *Professor Gutteridge*: What is the practice?

Mr. Laing: The practice is either the government, or, in a very few of these instances it may be an individual vouched for by the government.

2651. *Professor Gutteridge*: Which government?

Mr. Laing: The receiving government.

2652. *Professor Gutteridge*: The recipient government; that is the invariable practice, is it?

Mr. Laing: Invariable.

2653. *Dame Rachel Crowley*: The Board of Trade does not ask that, does it? You do not have to produce any licence from your importing man or his government before the Board of Trade gives you your export licence, do you?

Mr. Laing: No, but we make it a practice if we get an inquiry to make sure of the *bona fides* of the inquirer, and most of the governments make sure that that is so.

2654. *Dame Rachel Crowley*: But as an act of grace, and not of necessity?

Mr. Laing: Yes.

2655. *Professor Gutteridge*: May I ask a question arising out of that? You have subsidiaries in some cases?

Mr. Mitchell: Yes.

2656. *Professor Gutteridge*: Could you name them?
Mr. Mitchell: The whole list is before the Commission. What particular countries have you in mind?

2657. *Professor Gutteridge*: We have all of them, have we?

Mr. Mitchell: Yes. You have a list of the whole of them. We have an interest in—

2658. *Professor Gutteridge*: I am not speaking of that. For instance, there is I.C.I. Australia.

Sir Harry McGowan: They are a pure selling organisation.

2659. *Professor Gutteridge*: Are any of them manufacturing companies?

Sir Harry McGowan: Yes, we manufacture in Australia.

2660. *Professor Gutteridge*: War materials, I mean; I am not interested in the industrial organisation.

Sir Harry McGowan: No.

2661. *Professor Gutteridge*: Do any of them manufacture war materials?

Sir Harry McGowan: Canada does, but there we do not control the stock of their company.

2662. *Professor Gutteridge*: It is an independent organisation?

Sir Harry McGowan: Yes. We have a share holding, but we do not control.

2663. *Professor Gutteridge*: It has been suggested that one way of evading government requirements is to place the order round to some company of that kind, which will execute the order?

Sir Harry McGowan: You cannot do it.

2664. *Mr. Spender*: Supposing your Canadian branch wanted to export, would they get a licence from the Canadian government?

Sir Harry McGowan: They are the only buyers in the Canadian market.

2665. *Mr. Spender*: Is there a licensing system in Canada or Australia?

Mr. Mitchell: They are not exporters, anyhow. Those countries do not export.

2666. *Mr. Spender*: But they could export if they wanted to without having any licence?

Sir Harry McGowan: I could not tell you off-hand if a licensing system operates in Canada or Australia. I do not think so.

2667. *Professor Gutteridge*: Take South Africa?

Sir Harry McGowan: They buy from us.

2668. *Professor Gutteridge*: Then there are no military plants there?

Sir Harry McGowan: No, they have no plants.

2669. *Professor Gutteridge*: I am thinking of South Africa, because, looking at the thing in the abstract—I am not saying they do it—there is nothing to prevent the South African government buying from you and then exporting to some country to which you could not export?

Sir Harry McGowan: I think that is quite possible.

2670. *Professor Gutteridge*: Do you inquire as to the destination of exports to countries of that kind?

Sir Harry McGowan: We would not do that 'with the South African government. They might say, "That is our business"; but with continental nations we should do so.

2671. *Dame Rachel Crowley*: You would do it with foreign countries?

Sir Harry McGowan: Yes.

2672. *Professor Gutteridge*: As I understand it, there is a company in South Africa with which you have an arrangement?

Sir Harry McGowan: Yes.

2673. *Professor Gutteridge*: As I understand it, that is a territorial arrangement of some kind,—south of the River Niger, or something of that sort?

Sir Harry McGowan: Yes.

2674. *Professor Gutteridge*: Do they manufacture themselves, or do they obtain their supplies from you?

Sir Harry McGowan: They do not manufacture at all or obtain supplies. We deal direct with the South African government.

2675. *Professor Gutteridge*: They deal with no military supplies at all?

Sir Harry McGowan: No.

2676. *Professor Gutteridge*: You do not export any propellants to the South African Company at all?

Sir Harry McGowan: None whatever, but to the government there.

2677. *Professor Gutteridge*: Or other military materials?

Sir Harry McGowan: No.

2678. *Chairman*: I think there is only one other question which I wanted to ask. I see that Mr. Newbold, amongst other matters, said he thought there was an arrangement between du Pont and Kuhlmann in France?

Sir Harry McGowan: There is no arrangement of any kind with Kuhlmann except quite indirectly, in that they are in the international nitrogen cartel, and we are a member of that.

2679. *Professor Gutteridge*: May I ask something arising out of that. Is it possible for private firms to manufacture military explosives in France?

Sir Harry McGowan: No.

2680. *Professor Gutteridge*: It is a government monopoly?

Sir Harry McGowan: Yes.

2681. *Professor Gutteridge*: Are you in competition with the French government monopoly?

Sir Harry McGowan: In France, do you mean?

2682. *Professor Gutteridge*: No, elsewhere; because I have been looking at the records of the American Inquiry. I forget the actual document, but I think it is du Pont's European representative.

Sir Harry McGowan: Yes, I know what you mean.

2683. *Professor Gutteridge*: He complains that the French powder monopoly are competing with you or

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with du Ponts in Greece. So there you have a case of a nationalised factory entering into competition with a private firm?

Sir Harry McGowan: Quite.

2684. Professor Gutteridge: The kind of thing you adumbrated?

Sir Harry McGowan: Yes.

2685. Professor Gutteridge: I do not know whether I ought to ask you this or not, but I am going to. Is it the French government factory you are thinking of in your statement when you speak of loans to be taken out in explosives?

Mr. Mitchell: The whole of the explosives industry of France is a monopoly in the hands of the government, and they hand it over to distribute to certain people; but it is all monopolised.

2686. Chairman: I did not understand that, because I thought one of the complaints in France was that the munitions industry had such an influence through the press; but if it is a state monopoly—

Sir Harry McGowan: It is only explosives, not munitions.

Professor Gutteridge: It is the Société de Fabrique Internationale, or some such name as that. 2687. Dame Rachel Crowdy: We have before us, Sir Harry, a citation of a letter which was quoted in the American Inquiry on page 1337, in Part 5 of the American proceedings, and it is Exhibit 477. The letter is to Imperial Chemical Industries, Ltd., from du Pont, and it says:—

Dear Sirs, attached is confirmation copy of our cablegram of 7th June informing you that Senor Manuel Ferreira, our agent in Paraguay, who is now in Buenos Aires, asked us for prices c.i.f. Montevideo on 200 kilos of picric acid and 2,000 kilos flake T.N.T. We also informed you in our cablegram that we could not quote from this end owing to the embargo on munitions and military propellants decreed by President Roosevelt. In view of the fact that there is no similar embargo obtaining in England, we suggested that you quote prices to your office in Buenos Aires, who in turn would advise Ferreira. Although the inquiry distinctly states that prices are wanted c.i.f. Montevideo, we suspect that the material is for Paraguay, and since we wish to co-operate with our Government in observing the embargo, we deemed it best not to quote.

That is signed by Mr. Bates for the du Pont de Nemours Company. I should like to know, if I might, whether that order was fulfilled?

Sir Harry McGowan: We did not quote at all. 2688. Dame Rachel Crowdy: Had you quoted for an order like that—and I suppose sometimes you obviously must have orders passed on to you from your affiliated organisations—to the du Pont de Nemours Company, do they get a commission from you?

Sir Harry McGowan: I have no doubt, as a general principle.

2689. Dame Rachel Crowdy: And similarly, if you passed on something to them because of an embargo, you would expect a commission from them for passing on the order?

Sir Harry McGowan: Well, we have not done it; that is the answer.

2690. Chairman: But it would come under your agreement if you did it?

Sir Harry McGowan: Yes, it would, if we did it.

2691. Dame Rachel Crowdy: Yes, if you did it.

Mr. Mitchell: It would if we did it, but we have not done it.

2692. Dame Rachel Crowdy: But it could be done under agreements with affiliated bodies?

Mr. Mitchell: Yes.

2693. Dame Rachel Crowdy: Then on page 1346, Exhibit 486, I wanted to ask you something. It is a very long letter, and I certainly will not read it; but I see from that that the Jardine Engineering

Company is acting as your agent in the Far East. They are also agents of Vickers, are they not?

Sir Harry McGowan: I think they are.

2694. Dame Rachel Crowdy: We gathered that, when they gave evidence here the other day, and I expect they are, because I see the letter says: *The Jardine Engineering Corporation are an established company in China and have been extremely successful in the military business.* So they probably do something of this kind. Do you work direct with Jardines, or does Vickers act as licensed agent for you?

Sir Harry McGowan: We work direct with Jardines—direct with Jardines the whole time.

2695. Dame Rachel Crowdy: Then again that same letter refers to a Chinese purchasing company?

Sir Harry McGowan: Yes.

2696. Dame Rachel Crowdy: You deal with that company, do you not?

Sir Harry McGowan: Do you mean in Berlin?

2697. Dame Rachel Crowdy: Yes.

Sir Harry McGowan: I do not think we have. The only orders we have got have come direct from Jardines in China.

2698. Dame Rachel Crowdy: There is something here: *I believe the only purchases made since that time have been 8 tons of cordite, which was sold by I.C.I., and 200 tons of T.N.T., which was sold . . . through the Chinese-Berlin office.*

Professor Gutteridge: Colonel Creswell was mentioned in this, and perhaps Colonel Creswell would answer?

Colonel Creswell: I do not deal with explosives.

Professor Gutteridge: You see what it says here?

Colonel Creswell: Yes.

Professor Gutteridge: Mr. Montague Smith was apparently handling military stores at this time?

Colonel Creswell: Yes. If I may say so, I am small arms ammunition, and I do not deal with these matters.

Mr. Laing: In explosives, as distinct from small arms ammunition, we for the last three years have had to deal with the purchasing commission of the Chinese Government in Berlin.

2699. Dame Rachel Crowdy: The Chinese-Berlin office is the same as the Chinese purchasing commission?

Mr. Laing: Yes, exactly.

2700. Dame Rachel Crowdy: But sometimes dealings have been going on with the Chinese Ambassador in Berlin? Is it officially connected with the Chinese purchasing company, and it is officially connected with the Chinese government?

Mr. Laing: It is really a commission in Berlin to buy supplies.

2701. Dame Rachel Crowdy: And therefore recognised by the Chinese government?

Mr. Laing: Yes, absolutely.

2702. Dame Rachel Crowdy: Then—if I may go on in connection with exports to China, which interest me rather particularly—I understood that in exporting to China it was always only on a *huckao* from Nanking for all exports, even to Nanking?

Mr. Laing: Yes. There was one exception, I think, when the Nanking government allowed us to make one shipment to Canton; but as a rule, except for that one instance—and the government knew all about it—we had a *huckao* from Nanking.

2703. Dame Rachel Crowdy: And that is the only form of licence on which you export?

Mr. Laing: Yes.

2704. Dame Rachel Crowdy: What licence did you use on the one occasion when you did not use the Nanking licence, do you remember?

Mr. Laing: My assistant tells me, on a letter from the Chinese Ambassador in London in that one instance for sending some 10 tons of, I think it was, T.N.T. to Canton. That is the one instance.

2705. Dame Rachel Crowdy: Then, when you are supplying an order from Canton, and you get your Board of Trade licence, is it always made out for

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Canton, or is it ever made out for Nanking on consignment? Can you remember any case of that at all?

Mr. Laing: The official consignee is Canton.

2706. *Dame Rachel Crowdy:* It is always Canton; there is no exception to that at all?

Mr. Laing: That is so.

2707. *Dame Rachel Crowdy:* Shall we have an opportunity, Mr. Chairman, of asking more questions later on?

Chairman: Yes, certainly, if you want to.

Dame Rachel Crowdy: Then I think I will pass from that at the moment.

2708. *Sir Kenneth Lee:* In the course of your own statement, Sir Harry, you say: "It is also necessary that industry should be encouraged to continue research". What kind of encouragement do you look for there?

Sir Harry McGowan: Well, by means of orders placed for military requirements that we are capable of undertaking.

2709. *Sir Kenneth Lee:* Would that encourage research?

Sir Harry McGowan: Yes, it certainly would as far as we are concerned, even only giving us a reasonable profit.

2710. *Sir Kenneth Lee:* You do not have in mind any contribution towards research?

Sir Harry McGowan: No.

2711. *Sir Kenneth Lee:* You say at the same time you are doing research?

Sir Harry McGowan: We are doing it in certain directions.

Mr. Rogers: Yes. For example, in connection with T.N.T. we must research. It is one of our industrial manufactures as well as being a military manufacture. I think I may perhaps add a word with regard to that. The extent to which one can develop by research in a laboratory is limited. It is always necessary in manufacture to have some real manufacture upon which to found your research, and that I think is the chief point in this, that unless one has some actual manufacture to do, the amount of research is restricted to the laboratory, which is much too limited for any practical result to follow.

2712. *Sir Kenneth Lee:* Then, Sir Harry, at the end of your statement you say that private industry in the case of an important war would be taken over and that you would throw all your weight, all the weight of your great organisation, into the production of what was necessary?

Sir Harry McGowan: Yes, surely.

2713. *Sir Kenneth Lee:* Do you contemplate any such eventuality as that your industry would be taken over in a similar way as the railway companies were taken over during the last war?

Sir Harry McGowan: Well, I could not answer that in that way, but what occurred in 1914 to 1918 would be repeated. The first call on what we produce is for government requirements.

2714. *Sir Kenneth Lee:* Then your business would be mainly producing for the government during a period of war?

Sir Harry McGowan: We would have certain peace productions going on still, as we had during the last war. During the last war we had to keep all the coal mines going by making blasting explosives.

2715. *Sir Kenneth Lee:* But the munitions business, instead of being $\frac{1}{4}$ per cent., as it is now, might be 75 per cent.?

Sir Harry McGowan: I would not like to put a figure on it, because it means extending our plant. I take it there would be an increased demand, and we should have to extend according to our increasing requirements.

2716. *Sir Kenneth Lee:* Would you agree that it would be desirable to conscript the industry?

Sir Harry McGowan: I think it would be essential to conscript in this general sense, that

whatever government required to be produced must be produced.

2717. *Sir Kenneth Lee:* But I mean much more than that. I mean control—that the industry would come under government control?

Sir Harry McGowan: Well, no, I do not think so. I do not think our factories were controlled by the government during the War.

Mr. Rogers: The question of control I think we look at in this way. The policy and the nature of the business, the nature of the production really, should be controlled in the sense that it should be entirely for government purposes, whatever these may be. It might well be to supply explosives to the coal mines, and that would have to be so to some extent; but we do not think of control of the industrial undertakings as indicating any active governing of the technical and productive activity. That must be left in the hands of those accustomed to it, and, if I may say so, those well able to do it.

2718. *Sir Kenneth Lee:* It is obvious that there could not be detailed control, but what I had in mind was this. You agree that in the event of another war it would be desirable that the state should be able to conscript not only the industries, but the workers in them, and I take it you could not conscript the workers unless you took over the plant, in the same way or a similar way as the government took over the railways in the last war?

Mr. Rogers: I should not think that was necessary. My own experience during the War with the Ardeer factory, which was not one of the present ones, was that there was no conscription in the sense that you have in mind, but it was obvious that we had to comply with whatever regulations the government issued with regard to factories generally.

2719. *Sir Kenneth Lee:* I agree, but did it not result in great inequity, in so much as there was a great inequality between the amount of money which was earned by the men who went to the front and those who remained in the factory?

Mr. Rogers: Yes.

2720. *Sir Kenneth Lee:* Is it not desirable that that should be avoided?

Mr. Rogers: If it can be.

2721. *Sir Kenneth Lee:* Do not you think conscription would avoid it?

Mr. Rogers: I am afraid I could not say. That is a very difficult problem. That might bring on difficulties that really would make things much too difficult in a time of war. I am not able to discuss that at all. But I know that if conscription meant government persons having control of private factories—actual control—it would be a failure.

2722. *Sir Kenneth Lee:* It was not a failure with the railways, was it?

Mr. Rogers: Well, I do not know about railways. I am talking about manufacturing concerns. In my view, no manufacturing concern could be operated that way, assuming it were reasonably efficient to begin with.

2723. *Sir Kenneth Lee:* You would agree that in the next war every one from the managing-director down should not get more than they would get if they were occupying similar positions in the army?

Mr. Rogers: Yes—well, if that was so all throughout the country, no one could have any objection to it.

2724. *Sir Kenneth Lee:* Would you agree that that would be desirable?

Mr. Rogers: Well, as far as I myself am concerned, I would agree, certainly, if that were the policy of the government.

2725. *Professor Gutteridge:* You were aware, of course, that there was a good deal of feeling with regard to that during the War. I can vouch for that from my own experience. I used to see men working in front of furnaces at temperatures of something like 100 degrees in the shade at their soldier's pay as foundrymen, and their mates over in

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[Continued.]

England were getting up to £10 a week. And we had very great difficulty in keeping those men at work. If the British soldier had not been the magnificent man he was, he would not have done it.

Mr. Rogers: I quite agree that that should be dealt with. The manner of doing it I am afraid I am not competent to suggest.

2726. *Sir Kenneth Lee:* What I am thinking of is this. If everyone was conscripted it could not be said they were desirous of war, because the managing-directors and workers in the industries affected would be very much worse off in the case of war. It would be a means of taking the profit interest out of the war?

Sir Harry McGowan: I cannot imagine any managing-director conducting his business in order to stimulate a war for his own financial benefit.

Mr. Rogers: I certainly am not desirous of any war.

2727. *Chairman:* If he had his future definitely laid out for him, he would have no choice. He would have no choice if he was definitely told that he had got to do this?

Sir Harry McGowan: That is so, of course.

2728. *Sir Kenneth Lee:* Just one other little question, *Sir Harry.* Do you subscribe to any so-called patriotic societies?

Sir Harry McGowan: What do you mean by that?

2729. *Sir Kenneth Lee:* I mean the Air League or the Navy League. Perhaps they are wrongly named, but there are organisations of that kind?

Sir Harry McGowan: Do you mean subscriptions by the company?

2730. *Sir Kenneth Lee:* Yes.

Mr. Laing: Some years ago we subscribed £10 for a life-membership of the Air League of the British Empire, and that is the lot.

2731. *Mr. Spender:* As regards control in time of war, you would accept the government payment. "We approached this question from the point of view of procedure"—I think those are the words you used—so that if the state took over control in time of war, as you suggest, you would leave to the state to decide what they thought adequate remuneration for your shareholders?

Sir Harry McGowan: Well, that would be discussed. I would not like to express any definite opinion on that point. In point of fact, during the last war the state took 80 per cent. of the profits made.

2732. *Mr. Spender:* Yes, but it is still alleged that the profit remaining was in some cases excessive?

Sir Harry McGowan: That may have been so. It could not have been so in our case, I think.

2733. *Mr. Spender:* I am not alleging it in your case. I only want to try to get it clear that you would continue to take what was called profit out of it under state control?

Sir Harry McGowan: I agree.

2734. *Mr. Spender:* With regard to agreements, may I just call your attention to a passage in the proceedings of the American Inquiry, Part 3, Exhibit No. 261, at page 681. It is a letter from Captain John Ball of the Soley Armament Company, and it is written from London on March 25th, 1934, six years after the time when you said certain previous agreements were wound up; and he says then: "We have just heard that some of the stock of 7-65 Mauser ammunition was tested last November by a Bolivian officer, Colonel Brito, who was not very pleased with the results, and who ordered new ammunition from Imperial Chemical Industries, Ltd., who control Kynoch's factory here—"here" being presumably in London. Is that correct?

Sir Harry McGowan: Kynoch's is one of our companies. It belongs to us, and is one of our subsidiary companies.

2735. *Professor Gutteridge:* That is your small arms branch?

Sir Harry McGowan: Yes.

Colonel Creswell: I think I can say with regard to that that we have taken no orders from Bolivia at all.

2736. *Sir Kenneth Lee:* You have taken none?

Colonel Creswell: I do not know what Captain Ball is talking about at all. Of course, it was not a letter written to us.

2737. *Dame Rachel Crowdy:* Did Du Pont take Bolivia, while you took Paraguay?

Sir Harry McGowan: No. Du Pont does not make military ammunition.

2738. *Professor Gutteridge:* But you exported cartridges to Paraguay, did you not?

Sir Harry McGowan: Yes, again under licence.

2739. *Chairman:* Was that a definite licence, or a general licence? You have answered that, I think. You do not have general licences, I think you said?

Sir Harry McGowan: No, we have a special licence for each order.

2740. *Professor Gutteridge:* In other words, they were exported with the express licence and with the knowledge of the British government?

Sir Harry McGowan: Yes.

2741. *Professor Gutteridge:* You were not supplying both sides—I am putting it in a general way—with regard to small arms ammunition?

Mr. Mitchell: If I may put it in general terms, I think we have not, except to the extent of £8. That is all we have supplied to the Bolivians. It was a test order of some sort, and I think it was a small ammunition order. We charged them for sending it up country.

2742. *Professor Gutteridge:* It is quite a small item?

Mr. Mitchell: Yes. We have no trade with them.

2743. *Mr. Spender:* I think that although your arms business is a very small percentage of your total business, it is intrinsically a very large business?

Sir Harry McGowan: Not from a profit point of view, or even volume. You have the details of all these orders in your hands. It is a very insignificant amount of money compared with the total.

2744. *Mr. Spender:* But it is a very important factor. You would not disagree with the statement that your share of this business is a very important element?

Mr. Mitchell: I do disagree.

Sir Harry McGowan: I do not agree with that.

2745. *Mr. Spender:* But potentially?

Sir Harry McGowan: I am dealing with the facts as we know them.

2746. *Mr. Spender:* But your general submission is, as I understand it, that though it is a small part of your business, yet potentially you are a tremendous asset to the country?

Sir Harry McGowan: Yes; I emphasise that.

2747. *Mr. Spender:* And therefore, if I understand you aright, you say it would be useless for the government to nationalise until it nationalises the whole of your industry?

Sir Harry McGowan: Yes, I think that is correct; and that, in our opinion, is physically impossible.

2748. *Mr. Spender:* And in your opinion it is physically impossible to detach the two, and your submission is that your value is a potential value of expansion to the country which applies to the whole of your industry.

Sir Harry McGowan: That is correct.

2749. *Mr. Spender:* If it was a question of nationalising or not, the government would have to nationalise the whole of your industry, or leave you alone?

Sir Harry McGowan: Yes.

2750. *Mr. Spender:* And you do not think there is any half-way house between those two things?

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[Continued.]

Sir Harry McGowan: No, I do not think so.
 2751. *Mr. Spender:* You do not think your military part ought to be detached for the purpose of accounting and costing from your other activities?

Sir Harry McGowan: No, because to-day you have many warlike activities flowing into peace time activities, even to-day.

2752. *Mr. Spender:* You talked of a supervisory board; but supposing in time of peace the government were to appoint its own official nominee to your board to watch over its interests, would you regard that as desirable?

Sir Harry McGowan: It would be quite useless.

2753. *Mr. Spender:* Why useless?

Sir Harry McGowan: Because we think we are competent to run our business, and we are not sure that the government nominee . . .

2754. *Mr. Spender:* But still the government has an enormous interest in this branch of your business?

Sir Harry McGowan: Well, the country has.
 2755. *Mr. Spender:* But you do not think it would be a satisfactory way of assuring the public that all was right?

Sir Harry McGowan: No. It would not assure us. It might assure the public. It would not produce the results that we want.

2756. *Mr. Spender:* That may be a matter of opinion.

(Adjourned for a short time.)

2757. *Dame Rachel Crowdy:* Sir Harry, you made one very excellent point in your statement when you said that a great advantage of the continuation of private manufacture and private industries in your particular line was that the personnel, the plant, and the material would be available quickly in a war emergency. That was your special point, was it not?

Sir Harry McGowan: Yes.

2758. *Dame Rachel Crowdy:* Then you said that many chemical compounds are used in humanitarian and remunerative industrial directions?

Sir Harry McGowan: Yes.

2759. *Dame Rachel Crowdy:* Those, by suffering really a very slight change, could become war material presumably, could they not?

Sir Harry McGowan: Yes.

2760. *Dame Rachel Crowdy:* Your chlorine and your sulphur could become poison gas?

Sir Harry McGowan: Yes.

2761. *Dame Rachel Crowdy:* You say that you do not export lethal gas of any kind?

Sir Harry McGowan: No.

2762. *Dame Rachel Crowdy:* Do you export to warring countries, or potentially warring countries, any of these commercial products which could very easily be converted into lethal products?

Sir Harry McGowan: We export chlorine.

2763. *Dame Rachel Crowdy:* You would, for example, export to two warring countries?

Sir Harry McGowan: I cannot define what "warring countries" are; but we do export chlorine to certain countries in the world for commercial purposes.

2764. *Dame Rachel Crowdy:* And even if a country were declared the aggressor, as Japan was, for example, in the Sino-Japanese war, or the Italo-Abyssinian war, you would still be able to export, and would export, materials which could very quickly be converted into lethal materials.

Sir Harry McGowan: We would export unless stopped by the War Office here or by our government.

2765. *Dame Rachel Crowdy:* It would really lie with the government?

Sir Harry McGowan: Yes.

2766. *Mr. Spender:* Would not that be covered by a licence?

Sir Harry McGowan: I do not think that necessarily that would be covered by a licence. It might be.

2767. *Dame Rachel Crowdy:* Would the material easily convertible be covered by a Board of Trade licence?

Sir Harry McGowan: I do not think so to-day; but it might be quite easily, of course.

2768. *Dame Rachel Crowdy:* Would you see any objection to an embargo imposed on any easily convertible materials in the event of any country being declared an aggressor, declared by international decision to be an aggressor—do you see any great objection to the embargo then being put on export?

Sir Harry McGowan: I would not mind discussing that with the government. You mean with regard to export?

2769. *Dame Rachel Crowdy:* Yes; I mean for export to that country or for export and then re-export to any other country.

Sir Harry McGowan: Yes.

2770. *Dame Rachel Crowdy:* That is just as important, is it not?

Sir Harry McGowan: Yes.

2771. *Dame Rachel Crowdy:* I was going to ask you, with regard to exporting potential war material to countries which have been declared aggressors, or warring countries, have you noticed any increase in the demand from you at important times, say between 1928 and 1935 from Bolivia and Paraguay, or between 1931 and 1933 for Japan and Manchukuo—have you seen any increase in the demands on you?

Sir Harry McGowan: No.

2772. *Dame Rachel Crowdy:* Your figures have not varied very much?

Sir Harry McGowan: No.

2773. *Dame Rachel Crowdy:* I notice that actually your percentage figures for war material have gone up recently, have they not?

Sir Harry McGowan: Is that so? I thought they had gone down. That is finished material?

2774. *Dame Rachel Crowdy:* Yes.

Sir Harry McGowan: I thought you were on chlorine.

2775. *Dame Rachel Crowdy:* There is a slight confusion of the issue.

Sir Harry McGowan: I do not think we have been increasing our sales of chlorine to what you would describe as potential aggressors throughout the world.

2776. *Dame Rachel Crowdy:* You do not notice any great increase?

Sir Harry McGowan: No. We have no reason to think that what we have sent out are for warlike purposes.

2777. *Dame Rachel Crowdy:* Not even if they go to an aggressive country—I have to use that word because it is the ordinary normal word—not even if they are being supplied to an aggressor?

Sir Harry McGowan: I do not think we have done that.

2778. *Dame Rachel Crowdy:* You do not think there is any great increase?

Sir Harry McGowan: I could let you have a statement of these sales and exports. Would you like that?

2779. *Dame Rachel Crowdy:* Very much.

Sir Harry McGowan: Very well.*

2780. *Dame Rachel Crowdy:* If I might go back for one moment to the question I asked you before about licences that you get from Nanking, if you are exporting to any part of China. You quoted one particular case this morning when you had not to get the ordinary Nanking certificate. Have you ever exported on what is known as the South-Western Council certificate?

Mr. Laing: I have never heard of such a thing. We have not.

2781. *Dame Rachel Crowdy:* It has been used by firms in different parts of the world when it is perhaps not advisable or very easy to get a Nanking certificate.

Mr. Laing: We have not an instance of that kind.

* Appendix 3, p. 470.

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[Continued.]

2782. *Dame Rachel Crowdy*: You have heard of them, though—your firm has heard of them?

Mr. Laing: Personally, I have not. I cannot recollect hearing of it at all.

Mr. Smith: The British government would never give us an export licence without a Nanking certificate, except in that one solitary instance in which case the Nanking certificate was substituted by a letter from the Legation here; so it is quite out of the question that we ever supplied on any South-Western government huchao.

2783. *Dame Rachel Crowdy*: Was that one case that you refer to in the last two years?

Mr. Smith: That was two years ago, I should think.

2784. *Dame Rachel Crowdy*: In 1933, about the time of the Japanese moving into Manchuria?

Mr. Smith: It was in 1932 or 1933.

2784a. *Dame Rachel Crowdy*: I think it was 1933. Never mind; it is not of any great importance. I find that in some of your papers you refer to the National Sulphuric Acid Association?

Sir Harry McGowan: Yes.

2785. *Dame Rachel Crowdy*: Is that a national branch of an international organisation of any kind?

Sir Harry McGowan: No; purely commercial.

2786. *Dame Rachel Crowdy*: Merely British?

Sir Harry McGowan: Yes.

2787. *Sir Kenneth Lee*: In answer to Mr. Spender, I think, to-day, you said it really was practical to separate your ordinary plant and to produce explosives as distinct from ordinary commercial articles, and in another part of the evidence it came out that the French had done it. Could you give us a little more information about that? As I understand it, the French produce all their own explosives?

Sir Harry McGowan: Military?

2788. *Sir Kenneth Lee*: Yes.

Mr. Rogers: Of course, it is possible to do it, but it would not be nearly so effective from the point of view of knowledge and capacity to expand when necessary if you did it.

2789. *Sir Kenneth Lee*: But if you had a chemical industry in addition, as the French have, to the manufacture of explosives, you would have that possibility of expansion, would you not?

Mr. Rogers: But I want to be quite clear about this.

Sir Harry McGowan: Is it a fact that the French government have a chemical industry in addition to manufacturing military explosives?

2790. *Sir Kenneth Lee*: I do not know.

Sir Harry McGowan: I thought you were going on that assumption.

2791. *Sir Kenneth Lee*: I was.

Sir Harry McGowan: I do not know.

Mr. Rogers: I am not aware exactly of what the French government have done, but I imagine that they manufacture military explosives in their factories, manufacturing such sulphuric acid and nitric acid as they want for the purpose. That is what I imagine they are doing. That, of course, is quite feasible. It was done during the War in this country—it can be done here. It is done at Holton Heath, the government factory; but in the case of a firm like I.C.I., to divorce these two things, to take away the military and put it in one place, you would lose the general knowledge and capacity and relation of one thing to another to which Sir Harry referred.

Sir Harry McGowan: And it would be more costly.

Mr. Rogers: Yes.

2792. *Sir Kenneth Lee*: I am not thinking so much about the cost; it was the point you made in reply to Mr. Spender about the practicability rather than the cost.

Sir Harry McGowan: Yes.

2793. *Sir Kenneth Lee*: I understand that the French have a dye industry.

Mr. Rogers: Yes.

Sir Harry McGowan: Not the government.

2794. *Sir Kenneth Lee*: But they have a dye industry in addition to the government explosives industry?

Sir Harry McGowan: No. Those have been separate for years.

Mr. Rogers: In this country our dyestuffs industry is absolutely apart from our explosives industry.

2795. *Sir Kenneth Lee*: In peace-time?

Sir Harry McGowan: Yes.

Mr. Rogers: I do not think that Sir Harry meant to suggest at all that the whole of our chemical industry is bound up physically with our explosives industry.

Sir Harry McGowan: No, not necessarily.

2796. *Mr. Spender*: I did not mean to suggest that you should physically actually detach your other industries or your military explosives side, but that you might, for the purpose of control and supervision, have separate auditing and costings of the two. That is not impossible, is it?

Mr. Rogers: No.

Sir Harry McGowan: With what advantage?

2797. *Mr. Spender*: From the point of view of control it might be a satisfaction to the public.

Sir Harry McGowan: I doubt that, in effect. However, that is my personal opinion.

2798. *Mr. Spender*: That is your opinion?

Sir Harry McGowan: Yes.

Mr. Rogers: It is perfectly simple of course, in production in a factory; and in fact in order to get a proper picture of what is happening in your production you must separate the various things. There is no difficulty whatsoever in accounting separately for certain things that you decide to be military.

Sir Harry McGowan: We do that to-day in our organisation.

2799. *Dame Rachel Crowdy*: You remember I brought up this morning Exhibit No. 477 in the American Inquiry; that was a case where du Pont wrote to Imperial Chemicals referring to their export to Montevideo—

Sir Harry McGowan: Yes.

2800. *Dame Rachel Crowdy*: —which you suspected was going to be diverted to Paraguay. That is on page 1337 of Part 5. You answered to my question that you had not fulfilled any order; you had refused the order?

Sir Harry McGowan: We did not even quote.

2801. *Dame Rachel Crowdy*: I should have followed that a little further and said: In your opinion, do you think it is a possible thing, an easy thing, to avoid an embargo should a firm wish to do so through the connections that firms have with each other in different parts of the world?

Sir Harry McGowan: It may be done.

2802. *Dame Rachel Crowdy*: Do you think that it makes evasion of the embargo extraordinarily easy?

Sir Harry McGowan: I do not think extraordinarily easy.

2803. *Dame Rachel Crowdy*: Extraordinarily possible, let us say?

Sir Harry McGowan: Possible, but not probable, I think.

2804. *Dame Rachel Crowdy*: You do not think there is a danger?

Sir Harry McGowan: There may be, of course.

I take it that the licensee here would look after that. I think that our Board of Trade would be very insistent on knowing the ultimate destination of the goods for which we wanted a licence.

2805. *Dame Rachel Crowdy*: That is not quite the point. Supposing that we in this country had an embargo on goods and we could not export, it seems so very probable that we should just pass the order on to a colleague in another country, get a commission, and get the order forthwith, in spite of the fact that our diplomats were fighting in Geneva, or wherever it may be they are fighting, or agreeing on an embargo in order to produce an ultimate peace.

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Sir Harry McGowan: I concede that that is conceivable.

2806. *Dame Rachel Crowley*: You think it is?

Sir Harry McGowan: Yes, conceivable; but we have not done it.

Chairman: It is always possible to commit a crime.

2807. *Sir Philip Gibbs*: Sir Harry, you have mentioned in your preliminary statement that there has been a good deal of criticism by sincere, but probably misguided, people against the I.C.I., and I understand that you really want me to press some of those points in order that you may answer them, and we should like to do so, I think, in order to show that they have been properly considered. They raise certain moral issues and certain issues on general policy; so will you allow me to question you rather on those lines?

Sir Harry McGowan: Certainly.

2808. *Sir Philip Gibbs*: Also in your preliminary statement you say that there is a widespread fallacy that Imperial Chemicals are essentially an armaments firm, and you lay considerable stress on the smallness of your profits; but from the point of view of your critics, is not that rather like the answer of the unfortunate lady who put in a plea that her unwanted child was only a very little one? I mean that if these moral questions are involved, it does not very much matter whether your profits are enormous or only moderate, and therefore I am rather pressing some of these points. The first question which I want to ask for my own information is this: Why is it that you desire to keep secret and confidential the names of certain firms with whom you have agreements?

Sir Harry McGowan: Agreements of a commercial character?

2809. *Sir Philip Gibbs*: Yes; and agreements for the exchange of patents and secret information and for the use of certain materials.

Sir Harry McGowan: I think that is commercial practice. Why should we disclose to the world the nature of the agreements that we have with any particular company? Why should we, unless we are forced to? It is commercial practice.

2810. *Sir Philip Gibbs*: I think you will see that that may lead to certain sinister suggestions that you want to keep secret certain information. Do you think it is necessary to keep that confidential?

Sir Harry McGowan: We are keeping nothing secret from you.

2811. *Sir Philip Gibbs*: No; but there is always the public to consider, and I am looking at the case rather from your point of view as well as from ours. Would you allow me, for instance, to mention certain firms that you have omitted from the published list?

Sir Harry McGowan: Yes.

2812. *Sir Philip Gibbs*: You have arrangements with certain firms of one sort and another in many countries in the world, including Germany, Spain, and other countries. Have I your permission to mention those three firms?

Sir Harry McGowan: Do, please. May I say that this has nothing to do with munitions—military requirements.

2813. *Sir Philip Gibbs*: It seems to me so to do.

Sir Harry McGowan: It has not, I can assure you.

2814. *Sir Philip Gibbs*: That is so?

Sir Harry McGowan: Yes.

2815. *Sir Philip Gibbs*: Then I am mistaken, because I read in your evidence and in your confidential memorandum that these firms have reciprocal exchange of improvements and patents with you.

Sir Harry McGowan: What firms?

2816. *Sir Philip Gibbs*: For instance, Rheinisch Westfälische Sprengstoff A. G.

Sir Harry McGowan: Purely commercial.

2817. *Sir Philip Gibbs*: What is the meaning of the word "Sprengstoff"?

Sir Harry McGowan: "Explosives."

2818. *Sir Philip Gibbs*: But surely they are capable of producing military explosives?

Sir Harry McGowan: They may be; I could not tell you; but the nature of our agreements with that company are commercial and not military.

2819. *Sir Philip Gibbs*: Not military?

Sir Harry McGowan: Not a bit.

2820. *Sir Philip Gibbs*: Very well; I accept that instantly. Bearing on that question, I should like to ask you whether these firms with which you have arrangements, and which you say are purely for commercial purposes, are not capable of instantly being converted into military production?

Mr. Rogers: As this is a technical matter, perhaps I might be allowed to answer your question. It is obvious, I think, from Sir Harry's evidence that any explosives firm is capable of making things of value in some degree or other for military purposes; and the same applies to these German firms you speak of. Any agreements that exist, any arrangements that they have, do not deal with the final military things; but it is obvious, of course—May I perhaps explain it to you in this way: I will take as an instance the case of a detonator for setting off the blasting charge in mining. If there is an invention in regard to that it is highly probable that it is an invention which has some bearing or other on detonators which are also used for military purposes.

2821. *Sir Philip Gibbs*: But with one firm you have a very definite arrangement enabling them to manufacture certain cartridges, and that is an Italian firm called Bombrini-Parodi Delfino.

Chairman: If you will look at your schedule you will see it is No. 2 on the first page, Class 1. I think that is the Hotchkiss agreement to which you referred.

Colonel Creswell: The Hotchkiss company wished for certain reasons to license that firm in Italy to make their guns. They also wished us to license them to make their cartridges, to give them the technique of that one cartridge so that it could be made in that country.

2822. *Sir Philip Gibbs*: I imagine you were helping them to produce a considerable quantity of these Hotchkiss cartridges, for use in a war which this particular nation seems to disapprove of very strongly.

Colonel Creswell: Five years ago—that agreement has expired.

2823. *Sir Philip Gibbs*: When did it expire?

Colonel Creswell: On the 10th November, 1935. I may say that if we had not shown them how to do it, someone else would have done.

2824. *Sir Philip Gibbs*: I think that is not a good argument; but we will not go into that at the moment. I think, Sir Harry, these rather vague charges made against your firm are really due to a sort of anxiety in the public mind because they imagine, rightly or wrongly, that you are in control of a widespread organisation of chemical firms which could instantly get to work to create explosives in any part of the world where there happens to be a spot of trouble. Do you agree with that definition?

Sir Harry McGowan: No, not for a moment.

2825. *Sir Philip Gibbs*: And you do not think, for instance, that whereas one side of your firm is engaged in fertilising the fruits of the earth, the other side is equally ready to blast that growth off the face of the earth at any particular moment?

Sir Harry McGowan: We have made our position quite clear in our statement of evidence.

2826. *Sir Philip Gibbs*: There are one or two points on which I should like to question you with regard to that; because it does seem to me that your agreement with du Pont does share up the world between you for the purpose of military propellant sales, powders, and so forth, for explosives, and that when there is trouble in certain countries like China and Japan, either you or the du Pont people do fulfil those orders. Is that so?

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Sir Harry McGowan: We are not alone in making those military articles; there is much competition from other people. All we do is to arrange a selling organisation with du Pont to make the business that we do in those countries economic.

2827. *Sir Philip Gibbs:* But also, of course, in order to get as many orders as you can?

Sir Harry McGowan: We certainly want them, for the reasons that I have stated in my evidence.

2828. *Sir Philip Gibbs:* Arising out of this du Pont agreement, there seem to have been certain considerations a few years ago as to whether you should get Germany to come within the terms of this arrangement. Is that so?

Sir Harry McGowan: Again commercial.

2829. *Sir Philip Gibbs:* I do not think so. It particularly mentions military propellants and detonators.

Sir Harry McGowan: Would you mind repeating your observation, please?

2830. *Sir Philip Gibbs:* My question was this: whether you were contemplating entering into an arrangement between yourselves and du Pont with Germany in order to get Germany into a selling organisation for the world?

Sir Harry McGowan: No.

Mr. Mitchell: That is not so.

2831. *Sir Philip Gibbs:* It seems to be borne out by certain correspondence published in the American Inquiry.

Sir Harry McGowan: Have you the reference there?

2832. *Chairman:* My recollection is that there was a question about meeting German competition.

Mr. Mitchell: Yes. May I suggest that *Sir Philip* may have in his mind a clause in one of the letters which indicated that if and when Germans were free to come back on to the market it might be necessary for us to re-consider this arrangement.

2833. *Chairman:* That is so.

Mr. Mitchell: That was the point; but there was no suggestion of any kind that we should associate ourselves with the Germans.

2834. *Sir Philip Gibbs:* It is Exhibit No. 1,000 in Part 12, and there is a passage on page 2881. It says:

We discussed at length the general question of the possibility of an agreement of some kind among military manufacturers, and we both thought that, while such an agreement might be possible as far as the manufacturers themselves were concerned, that due to the political situation in Europe to-day and due to the general attitude towards arms manufacturers, any attempt to make a formal agreement among manufacturers would cause the loudest and most violent criticism and put us in a very disagreeable position. We would be accused of joining together to foment wars, increase armaments, etc.

That is from a gentleman named Mr. William Taylor, and it is dated May 25th, 1934.

2835. *Chairman:* I think that the passage that *Sir Philip* wanted was the one you mentioned. There is a discussion between you and du Pont as to what is to happen if the Germans become manufacturers again?

Mr. Mitchell: Yes.

2836. *Chairman:* And you say that if they do, the basis of the present arrangement might have to be re-considered.

Mr. Mitchell: Might have to be re-considered.

2837. *Sir Philip Gibbs:* Yes, that is it.

Mr. Mitchell: There is no suggestion in that that we had any intention of getting together with the Germans. The suggestion was that we and du Pont might have to alter the basis of the understanding.

2838. *Sir Philip Gibbs:* I think I must question that point, because there was a considerable correspondence with regard to a Mr. Giera, whom I want to mention later, and the correspondence was to the

effect that Mr. Giera was appointed in order to expand this arrangement with the Germans with regard to military propellants.

Mr. Mitchell: I think you will find in dealing with that correspondence, that the moment we heard of the appointment *Sir Harry* protested to du Pont at the appointment of Mr. Giera.

2839. *Sir Philip Gibbs:* I want to come to that rather later on, in connection with the question of agencies; but at the moment you deny that there was any suggestion from Imperial Chemical Industries and du Pont for appointing an agent to bring Germany within your selling arrangement for the world?

Mr. Mitchell: Certainly.

2840. *Chairman:* I have the letter now; it is Exhibit No. 516, on page 1243 of Part 5. It is from *Sir Harry McGowan* and is written to Mr. Lamont du Pont:

I much appreciate your apprising me of the appointment of Mr. Giera as your agent for Germany. In the event of orders materializing I assume that these would be definitely for requirements of the Republic of Germany and not for re-export, although I do not think the agreement safeguards you in this respect.

In making the agreement I am sure you could not have had before you a resumé of the conversations between Colonel Taylor and my people when the military agreement in general was discussed and worked out. It is clear from our records that although Germany, Austria and Hungary are not dealt with in the agreement, the understanding is clearly that, as and when the Treaty of Versailles is modified, the whole position as at present covered by the general military agreement should be reviewed.

Although our German friends have been out of the export military business for many years, they probably have manufactured for local requirements, and I think we may assume that they have not been idle in their research. It is definitely established that they have not been so in military detonators. I feel sure that when freedom to manufacture is granted for home use and possibly for export they will expect to take a prominent position in the business and one which will be in keeping with our arrangement with them on blasting explosives, and we have in fact kept in mind this possibility.

If the agent you have appointed, therefore, is at all active, I think that any future negotiations would tend to become more difficult and the Germans would probably consider that as we each reserve to ourselves orders from our respective Governments they should be entitled to do likewise.

2841. *Sir Philip Gibbs:* Thank you. Is not that a direct statement that you did have that idea in your mind?

Mr. Mitchell: No. I wrote the letter at the time for *Sir Harry* to sign, and I had no such thought in my mind. It was merely that we were warning this man that he was making a bad business move in appointing an agent in Germany, in view of possible developments in the future.

2842. *Sir Philip Gibbs:* But you did not object to the idea that you should get Germany within that world-wide arrangement?

Mr. Mitchell: Eventually it may be; it depends on developments.

2843. *Sir Philip Gibbs:* May I ask whether you have made such an arrangement with any German agency?

Mr. Mitchell: No, we have not.

2844. *Sir Philip Gibbs:* May I ask you why you appointed the firm of Jardine as your agents in China when you had an office in Shanghai?

Sir Harry McGowan: I suppose we thought he might be more efficient in handling this particular business.

2845. *Sir Philip Gibbs:* May I ask you whether there was any feeling of delicacy in your mind as

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to, perhaps, the impropriety or, at any rate, the inadvisability of selling military propellants and explosives to the Chinese government when in other parts of China you were selling things for the purpose of agriculture, and so forth?

Sir Harry McGowan: No. I have no delicacy of feeling in that matter at all.

2846. *Sir Philip Gibbs:* Not the slightest?

Sir Harry McGowan: No.

2847. *Sir Philip Gibbs:* It is rather borne out in one or two passages that you rather considered it was not a good thing to act the part of Jekyll and Hyde (if I may say so) in China.

Sir Harry McGowan: If the Chinese government wanted munitions we were ready to supply them, with the permission of the British government.

2848. *Sir Philip Gibbs:* I quite understand that everything you do is entirely within the British licence system; but, of course, we have to consider whether that system ought not to be altered and controlled.

Sir Harry McGowan: Yes.

2849. *Sir Philip Gibbs:* There is rather an interesting letter which I should like to read out. It is Exhibit 471 on page 1316 of Part 5. Have you found that reference?

Sir Harry McGowan: Yes.

2850. *Sir Philip Gibbs:* This is a letter from Mr. Laing who, I believe, is here to-day.

Sir Harry McGowan: Yes.

2851. *Sir Philip Gibbs:* To Mr. White of du Pont?

Sir Harry McGowan: Our own agent in New York.

2852. *Sir Philip Gibbs:* It says:

Dear Mr. White: Mr. Haley, of I.C.I., China, had a talk with me to-day with reference to the difficulty that the Jardine Engineering Corporation have met in working the new military agreement. They say that it is really a most difficult thing to go to the buyers and suggest that it is a matter of indifference to them whether our manufacture or du Pont's is ordered. They indicate that good salesmanship consists in definitely offering one thing or another. This does not mean that where the buyer has a preference it would not be met, but assuming he has no particular preference they do want to mention the one or the other. My suggestion is that as regards Cordite they can quite definitely mention us. In T.N.T. I think a similar policy should apply. As regards nitrocellulose powder, however, I suppose du Pont should be mentioned, but always assuming that they are willing to meet the competitive prices.

Is not that rather a suggestion that you are sharing up the market in these things, and that you have certain rights with the du Pont people for certain powders, and that, whatever sales are made by the du Pont people, they should be shared between yourselves. It seems to me an arrangement which enables you to make profits out of sales in any part of the world by arrangement with du Pont for explosives. Am I correct in making that statement?

Chairman: You had a common management, had you not, under your arrangement and a definition of territories.

Mr. Laing: That is right.

2853. *Chairman:* You worked your business under that arrangement?

Mr. Laing: That is correct.

2854. *Chairman:* And this letter is suggesting to the agent that he had better not mix up the two people, but one should quote for powder and one for explosives?

Mr. Laing: It means this, that when one goes to sell a powder the agent could sell either du Pont's manufacture or I.C.I.'s manufacture, and he was sometimes asked which do you want me to buy. Cordite is the British government powder,

and I.C.I. know how to make cordite, perhaps, better than nitro-cellulose powder. With regard to nitro-cellulose powder, du Pont's perhaps have more technique in that direction. The agent would say to the customer: Take your choice. That comes under a joint selling arrangement which was instituted to cut down the expenses of this business in which prices have become very low. There are many other competitors.

2855. *Sir Philip Gibbs:* I notice a letter from the London office of du Pont to Major Casey, director of sales in the United States of America, dated 14th August, 1933. It is Exhibit No. 486, at page 1346 of Part 5 of the American proceedings. It deals with your arrangement with the Jardine Engineering Corporation, and it says: *Through them I.C.I. has received constant and very large orders for cartridges.* Referring back to a point I asked you a moment ago, here is a passage which I think you will find rather interesting: *I.C.I. feel it advisable in view of their non-military business in certain provinces which are not in sympathy with the Nanking Government not to handle the military business directly through I.C.I. Shanghai.* Do not you think that rather bears out what I was saying, that there was a question in your mind of what I might call propriety or delicacy?

Sir Harry McGowan: After all, that letter was written by du Pont's man to his people in Wilmington. I did not write the letter, and I am not responsible for what he says in the letter.

2856. *Sir Philip Gibbs:* But it is rather curious that these people, who are very closely in touch with your organisation, should have had that thought in their minds?

Sir Harry McGowan: Ah; I have no doubt a very serious misinterpretation.

2857. *Sir Philip Gibbs:* Very well. I just wanted to bring that point out. I hope you do not mind me pressing these points?

Sir Harry McGowan: Not at all.

2858. *Sir Philip Gibbs:* You say in your preliminary statement: "I deny that my Company has ever done anything to hinder the British or any other government's efforts for universal peace or has suggested to any foreign government that they should buy more than they themselves think they need." But, of course, under the licence system granted by the British government you do try, do you not, to get the biggest orders possible from any part of the world?

Sir Harry McGowan: Yes, surely.

2859. *Sir Philip Gibbs:* And I suppose those orders are likely to materialise in those parts of the world which are most troubled by the fear of war?

Sir Harry McGowan: That may be.

2860. *Sir Philip Gibbs:* And you do not hesitate, I think, as a good business man, to promote those orders?

Sir Harry McGowan: Yes, I do.

2861. *Sir Philip Gibbs:* You do hesitate to promote them?

Sir Harry McGowan: May I deal with that? I have here a letter addressed by one of my people to Colonel Taylor, du Pont's man, dated the 5th December, 1929:

"We have now given further consideration to your letter of 14th November and we must say that we have certain misgivings about wholly agreeing with the policy which you have had approved. In instances in South America where Governments have talked of setting up a factory for the manufacture of Propellant Powders, we have in agreement with your people, suggested the alternative, namely, the laying down of a stock for a period of years, part of it to be renewed, approximately, yearly, and paid for accordingly. We consider, however, that it is a different matter altogether as regards countries where there is no threat of setting up a factory and where indeed there may be no real demand for stocks. We do not think that we should

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take the responsibility of so to speak creating a demand. If it is a case of a country asking for the powder then the position is altogether different, but we feel that if we are the prime movers in suggesting more than stocks for defensive purposes and encourage European countries to take stocks, which left to themselves they would not order, then we do lay ourselves open to the charge from the League of Nations or from our own Governments that we may be justly accused as armament firms have been accused of in the past of making war possible or easier. The possession of ample military stores may sometimes cause a country to be more aggressive than would otherwise be the case. You will understand that this letter is not meant to be a criticism of the decision for which you have received approval, but we do think it is not unreasonable to question whether, according to the spirit that is operating nowadays, your Government and ours would look with disfavour on methods that savour of creating demands for the sake of orders and the consequent manufacture without due regard to the development of the Peace atmosphere."

This is a very strong document.

2862. *Sir Philip Gibbs*: That is very impressive; but there are certain indications, at any rate, in certain correspondence between you and your friends that that has not always been your policy, and that you have been anxious as a business man to increase the sale of explosives and munitions of war in any country which was able to buy them, and you have gone after that business, if I may say so, rather keenly?

Sir Harry McGowan: Business offering, surely. We have gone after business offering.

2863. *Sir Philip Gibbs*: I should like to suggest you have actually gone out very keenly to create business.

Sir Harry McGowan: Could you give me an instance?

2864. *Sir Philip Gibbs*: I must confess there is a slight weakness in quoting what people have written to you.

Mr. Mitchell: Thank you.

2865. *Sir Philip Gibbs*: But these are people who are very familiar with your business. In one letter from which I previously quoted it says: *I.C.I. are trying to solve the Far Eastern question to the best of their ability.*

Sir Harry McGowan: Who writes this?

2866. *Sir Philip Gibbs*: It is Exhibit 486. May I read it again: *I.C.I. are trying to solve the Far Eastern question to the best of their ability.* Does that mean you were trying to create peace in the Far East?

Sir Harry McGowan: Surely not. It is not our job to create peace.

2867. *Sir Philip Gibbs*: No?

Sir Harry McGowan: We knew certain business was offering and we wanted that business to come to our country.

2868. *Sir Philip Gibbs*: But it does look as if you were rather keen, and when you were trying to settle the Far Eastern question it really means, of course, you are trying to get as many sales as are possible owing to the conflict between Japan and China, does it not?

Sir Harry McGowan: I repeat we knew certain business was offering. It came to us by inquiry from the Chinese government and we quoted and tried to get that business for this country. We do not go to China and try and stimulate the government to order what they do not require.

2869. *Sir Philip Gibbs*: No, but of course that raises a very large question as to what they should require in certain cases?

Sir Harry McGowan: That is for them to decide, surely.

2870. *Sir Philip Gibbs*: For instance, I want to put it to you that you were endeavouring to get business

with Japan, but that it was very difficult to do so because the Japanese make a good many of their own materials of war, but that you did deal, according to one of your correspondents, in certain specialities.

Sir Harry McGowan: Yes.

2871. *Sir Philip Gibbs*: Those specialities, whatever they may have been, were for the invasion, no doubt, of Manchukuo.

Sir Harry McGowan: Yes.

2872. *Sir Philip Gibbs*: And at the very same time you were supplying the Chinese with the same materials of war in order to repel that invasion?

Sir Harry McGowan: Yes.

2873. *Sir Philip Gibbs*: I am not endeavouring to make a personal attack on you, but the critics and the people in the world who deplore the dangerous condition of the world think that this system of private sales abroad does increase the danger by providing an aggressive nation with weapons it desires and at the same time supplying the defending nation with the weapons they need for their defence, and thereby increasing the quality and the quantity of the world's explosive force.

Sir Harry McGowan: I think I answer that in my own evidence by saying that if private manufacture is stopped, then it is obvious to us that nations will put down their own plant.

2874. *Sir Philip Gibbs*: But rather ineffectively, perhaps?

Sir Harry McGowan: I do not know. With science as it is to-day I do not think we could accept that statement. There are many people capable of putting down plant of a very efficient character in any part of the world, and we feel, I repeat, that if private manufacture was stopped it would result in government factories with a great over-capacity of what they want for defensive purposes. That is the answer, I think.

2875. *Sir Philip Gibbs*: It is certainly an answer which wants a lot of examination, but I think it might be fairly argued that this private traffic in the material of war, at any rate at the present time, does increase both the quantity and the quality of the machinery of slaughter in the world.

Sir Harry McGowan: That is a matter of opinion.

2876. *Sir Philip Gibbs*: That, of course, is rather a theoretical argument.

Sir Harry McGowan: Yes.

2877. *Sir Philip Gibbs*: But that, I think, is really at the basis of certain attacks which have been made upon your firm.

Sir Harry McGowan: It may be.

2878. *Sir Philip Gibbs*: And I am very glad, of course, to give you an opportunity of answering them.

Sir Harry McGowan: Thank you.

2879. *Sir Philip Gibbs*: May I ask you whether you know a gentleman named Soong?

Sir Harry McGowan: I do.

2880. *Sir Philip Gibbs*: I think you will agree with me that he has been called the keeper of the purse in China?

Sir Harry McGowan: He was for a time, but not now.

2881. *Sir Philip Gibbs*: It is stated in the correspondence which has been published in the American Inquiry that you saw a good deal of Soong during his visit to Europe. Is that so?

Sir Harry McGowan: It is so. What do you mean by a good deal?

2882. *Sir Philip Gibbs*: Several times.

Sir Harry McGowan: Yes, I admit that.

2883. *Sir Philip Gibbs*: May I ask for what purpose?

Sir Harry McGowan: Certainly. T. V. Soong was very anxious indeed that my company should put down a plant for the manufacture of sulphate of ammonia in China.

2884. *Sir Philip Gibbs*: Did you go out to China?

Sir Harry McGowan: I went to China after seeing him in London. As you said he was the

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keeper of the privy purse, until one fine night he was not, and I did not get the contract.
2885. *Sir Philip Gibbs*: You did actually go to China afterwards in order to—

Sir Harry McGowan: No, no.

2886. *Sir Philip Gibbs*: . . . to follow your acquaintance.

Sir Harry McGowan: No, I had a desire to go to China before seeing him in London. He came over for the World Economic Conference. We have a very large business in peaceful products in China, and I make it a point, as chairman of the company, to travel the various parts of the world where we have organisations, and I took China in my stride. That is all. There I did discuss with them the erection of this plant, but nothing came of it. I was rather glad.

2887. *Sir Philip Gibbs*: At that time you were making rather heavy sales to China, were you not?

Sir Harry McGowan: Of what?

2888. *Sir Philip Gibbs*: Explosives.

Sir Harry McGowan: What kind of explosives?

2889. *Sir Philip Gibbs*: I cannot give you their technical names.

Sir Harry McGowan: Military?

2890. *Sir Philip Gibbs*: Yes.

Sir Harry McGowan: I doubt it; I do not think so.

2891. *Sir Philip Gibbs*: I think so from certain documents I have.

Sir Harry McGowan: Ammunition?

2892. *Sir Philip Gibbs*: Yes.

Sir Harry McGowan: Yes.

2893. *Sir Philip Gibbs*: I rather wanted to ask you the reason for your association with Vickers in China.

Sir Harry McGowan: As regards selling? I am afraid I could not answer that.

Mr. Laing: The Jardine Engineering Corporation were agents for Vickers, I think I am correct in saying, before they were agents for us. The Jardine Engineering Corporation might get orders for small arms and give the orders to us or to Vickers, who might, in turn, order from us, or from some other body. That position had to be cleared up. There is nothing to it. That is all I can say about it. They were joint agents for the two of us.

2894. *Sir Philip Gibbs*: It seems to me a linking up between two very powerful combinations in the world, namely, I.C.I., and Vickers, who, between them, really do actually control very vast amounts of what I should call explosive power; and I understand that the orders you received through Vickers in China were rather heavy; they amounted to considerable sums of money.

Sir Harry McGowan: Do you suggest this association was prejudicial to some one?

2895. *Sir Philip Gibbs*: I think it might be interpreted as being rather dangerous.

Sir Harry McGowan: From what point of view?

2896. *Sir Philip Gibbs*: I feel myself that it is little dangerous to the world that enormous private combinations should get together to exploit the military needs of the world.

Sir Harry McGowan: So far as I am concerned, I object to the word "exploit" in connection with I.C.I.

2897. *Sir Philip Gibbs*: Develop.

Sir Harry McGowan: I do not like the word "exploit", anyhow.

2898. *Sir Philip Gibbs*: Then I will withdraw that word.

Sir Harry McGowan: Thank you.

2899. *Sir Philip Gibbs*: You do not agree that there is some kind of danger?

Sir Harry McGowan: Not for a moment.

2900. *Sir Philip Gibbs*: Very well. Then with regard to Exhibit 486—I seem to be referring to that a good many times—it says, referring to your firm: They handle Japan in a different way and believe it should not be handled by the same people as are handling China. Have you got that?

Sir Harry McGowan: Yes.

2901. *Sir Philip Gibbs*: Why not?

Sir Harry McGowan: Again I am not prepared to accept what Mr. Taylor says to his people in Wilmington as representing our views of the situation.

2902. *Sir Philip Gibbs*: I will ask the Chairman's ruling on this. I rather fancy I am entitled to ask you questions on points like that which have been raised by your correspondents.

Chairman: No one objects to you asking the questions, but the answer is that they are not responsible for the opinions of the writer.

Sir Harry McGowan: That is so; it is not our correspondence.

Sir Philip Gibbs: I agree to that.

Sir Harry McGowan: He is not our employé.

Chairman: You can ask whether he agrees with the opinion of the correspondent, but you cannot attach the opinion of the correspondent to the I.C.I.

Sir Harry McGowan: No, you cannot.

2903. *Sir Philip Gibbs*: No; I draw a clean distinction between them, but I should have thought I was entitled to ask whether you agree you did handle Japan in a different way?

Sir Harry McGowan: It may be so.

2904. *Sir Philip Gibbs*: May I suggest possibly that the reason was that you wanted to handle Japan through different people because you felt it was rather awkward to be selling arms to both sides?

Sir Harry McGowan: No, I have no objection at all to selling arms to both sides. I am not a purist in these things.

2905. *Sir Philip Gibbs*: But there must have been some reason why you wanted different people to handle your orders in Japan?

Sir Harry McGowan: Jardines are not in Japan.

2906. *Sir Philip Gibbs*: I mean to say that applies to your own agents, of course.

Sir Harry McGowan: Yes.

2907. *Sir Philip Gibbs*: That is to say, you were dealing in China through Jardines.

Sir Harry McGowan: Yes.

2908. *Sir Philip Gibbs*: But you wanted to deal with Japan from a different angle.

Sir Harry McGowan: It may have suited us better. That is purely internal management—that is all I can say—for us to decide, what kind of representation we have of the firm in selling our products in any part of the world.

2909. *Dame Rachel Crowdy*: Might I suggest you felt you had to have rather more sophisticated agents in Japan?

Sir Harry McGowan: It might be.

2910. *Sir Philip Gibbs*: I would like to ask another question. These questions may sound impertinent, but they are not meant to be, in my mind.

Sir Harry McGowan: I am sure they are not.

2911. *Sir Philip Gibbs*: There is another of these very awkward letters from other correspondents in which they seem to report very closely upon your business. I think it is, again, Exhibit No. 486.

Sir Harry McGowan: This is quite a famous letter.

2912. *Sir Philip Gibbs*: It is again about this dispute, and refers to Mr. T. V. Soong. It says: *Confidentially, Sir Harry McGowan has been in touch very closely with T. V. Soong during his whole visit and is going himself early in September—that is 1933—to China to see T. V. Soong on the spot to try to make the most out of the connection started in England.* We have already dealt with that; but I wanted to ask you one question. Does not that rather suggest to the minds of unpleasant people that it is necessary to have a political pull in order to get orders in this particular form of business?

Sir Harry McGowan: I do not think for a moment that is so. I was told by our people in China that T. V. Soong would be the man who

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would handle negotiations for the erection of this particular plant. That is why I saw him. It was not munitions at all.

2913. *Sir Philip Gibbs*: Not munitions?

Sir Harry McGowan: No, no; a fertiliser—sulphate of ammonia.

2914. *Sir Philip Gibbs*: Was he not also paymaster for any munitions material?

Sir Harry McGowan: He may have been. I cannot tell you that.

2915. *Sir Philip Gibbs*: I am told from other sources that at that time he did hold the purse strings in China.

Sir Harry McGowan: He was chancellor of the exchequer in China at that time.

2916. *Sir Philip Gibbs*: Therefore he would be responsible as paymaster for any explosives material?

Sir Harry McGowan: Are you talking of military now?

2917. *Sir Philip Gibbs*: Yes.

Sir Harry McGowan: I suppose he would. Why not? Someone must pay for the goods.

2918. *Sir Philip Gibbs*: It must be useful for a business man to get in touch with that particular man.

Sir Harry McGowan: I think it is quite useful.

2919. *Sir Philip Gibbs*: Are you at all responsible for the personal and moral character of your agents?

Sir Harry McGowan: I am afraid not. It is a big job.

2920. *Sir Philip Gibbs*: Do you look at all into their credentials?

Sir Harry McGowan: Of course we do—you mean commercial credentials?

2921. *Sir Philip Gibbs*: And, I imagine, their general character.

Sir Harry McGowan: What do you mean by that?

2922. *Sir Philip Gibbs*: I mean that you would not deliberately appoint an agent who had, let us say, been a resident in Portland.

Sir Harry McGowan: I think not. I am sure not.

Chairman: Outside the jail or inside the jail?

2923. *Sir Philip Gibbs*: But I imagine that you do not have much control over the character and credentials of the agents whom you share with du Pont.

Sir Harry McGowan: We exercise all the control we possibly can.

2924. *Sir Philip Gibbs*: There was a gentleman previously mentioned by me named Mr. Giera, and he was recommended to you by Mr. Felix du Pont as an agent?

Sir Harry McGowan: Go on, Sir.

2925. *Sir Philip Gibbs*: Did you know—I imagine you did not, of course—that he was an international spy by name Brenner and that he had acted as agent for 13 different countries, that he was used by the Germans to mine the Dardanelles and Heligoland, and that he was working in close co-operation with von Papen and Bey-Ed in the United States of America before the end of the War?

Sir Harry McGowan: Mr. Mitchell knows more about that than I do.

2926. *Sir Philip Gibbs*: Can you answer that, Mr. Mitchell?

Mr. Mitchell: I knew nothing about that until I saw the result of the American Inquiry. I would like to put right one point. He never was our agent. He was recommended to us by du Pont and our letter protested, not because of his incapacity but because we thought it was a wrong move. He was never our agent, he was never appointed.

2927. *Sir Philip Gibbs*: May I read you the letter? Exhibit 522, page 1237.

Chairman: Is it worth pursuing?

Sir Philip Gibbs: Yes, I think it is rather important. It is a letter dated February 9th, 1933, from Mr. Lamot du Pont to Sir Harry McGowan. It says

Dear Sir Harry: We have made an agreement in the nature of an agency appointment with Mr. E. D. Giera, looking toward the sale of military propellants to the Republic of Germany. I understand that Germany is excluded from our understanding with respect to sale of military explosives in Europe, under which we keep each other advised of our movements, but we feel that it is desirable that we should inform you in this case. I am enclosing herewith a copy of the agreement with Mr. Giera, which speaks for itself, and which I understand covers the entire understanding between him and us. . . .

and so on. You did acknowledge that letter?

Mr. Mitchell: Yes. And to the best of my recollection Sir Harry McGowan said he was very glad to have this letter and to read of the appointment of Mr. Giera as an agent for du Pont. But Sir Harry at the same time pointed out that it was a mistake to make that appointment, in his judgment.

2928. *Sir Philip Gibbs*: Because, I think, at that moment of the Treaty of Versailles.

Mr. Mitchell: Because of the Treaty of Versailles and because of the interference with the Germans in their own market—looking forward to the future. That is the basis upon which it was put. 2929. *Sir Philip Gibbs*: The point I was making was this, that you are not in control in any way of the type of character who may be appointed as agent—of whom you might hear between yourself and du Pont.

Sir Harry McGowan: Oh, yes. I would not say that. We had no idea of this man's history at all. We objected to his appointment for other reasons. We take very great precaution ourselves in appointing our agents. They must be people of the highest standing.

2930. *Sir Philip Gibbs*: Even in the South American countries?

Sir Harry McGowan: Oh, yes. We appoint the best we can get. I will put it that way.

2931. *Sir Philip Gibbs*: You have, perhaps, not very much direct control of those agents in the Latin-American countries?

Sir Harry McGowan: If they are our own agents, we have.

2932. *Sir Philip Gibbs*: They are the best agents you can get?

Sir Harry McGowan: Oh, surely.

2933. *Sir Philip Gibbs*: Do you think it advisable to exchange secrets with foreign firms?

Sir Harry McGowan: Secrets covering what?

2934. *Sir Philip Gibbs*: Secrets covering new inventions for propellant powder, detonators, or for chemical processes which may be used for war purposes.

Sir Harry McGowan: Mr. Rogers will deal with that.

Mr. Rogers: You are referring, doubtless, to the du Pont company?

2935. *Sir Philip Gibbs*: I am referring especially to some of these other firms.

Mr. Rogers: Do you wish to take this broadly, as a question of transferring secret information?

2936. *Sir Philip Gibbs*: Yes.

Mr. Rogers: The term "secret" in that sense is used entirely to represent a "know how," &c.—a method that has not been patented. "Patents and secret processes" means patents and any other information that you happen to have; in many cases the information that is exchanged is in no way secret.

2937. *Sir Philip Gibbs*: For instance, supposing you were to discover some rather important new combination of chemicals, would it be within your agreement to exchange that chemical information with that Italian firm, Bombrini-Parodi-Delfino?

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Mr. Rogers: I am not quite clear to what agreement you are referring.

2938. *Sir Philip Gibbs:* No. 2 in Class 1—the Hotchkiss agreement that has already been mentioned.

Mr. Rogers: That particular agreement had nothing at all to do with chemical processes. It was for a specific purpose, as Colonel Creswell has said.

2939. *Sir Philip Gibbs:* What about the Rheinisch Westfälische, in which you agreed to exchange patents and secret information?

Mr. Rogers: That is for commercial explosives. We have had many agreements of that sort in the past with various explosives firms in various parts of the world. Naturally, in the position in which we are, being responsible not only for almost all the industrial explosives produced in this country, but also for South Africa to a great extent, we have to be up to date, and it is perfectly clear that we would not be up to date if we depended entirely on our own inventive capacity. We must get processes that other people have, and as soon as we get them they will want the processes that we have. These agreements of which you are speaking are merely those which allow for a situation in each case in which you have the world knowledge, so that the business may be run properly and efficiently. They mean nothing more than that. You understand, there are no arrangements of that kind regarding munitions?

2940. *Sir Philip Gibbs:* As a man who knows nothing about chemistry, I have a sort of secret anxiety lest the line between commercial explosives and military explosives should be extremely thin.

Mr. Rogers: I have already explained to you that any secret information or knowledge of a process which is mainly applicable to an industrial explosive is also applicable to a military one. The basis of the explosives is the same, whatever you are going to use them for.

2941. *Sir Philip Gibbs:* That does, to my mind, create a sort of danger that you are passing on information which might lead to further development of explosive power for very unpleasant purposes. Great stress has been laid in your statement upon arrangements for purely commercial explosives, but I think in the opinion of the world generally no distinction is drawn and it seems to be impossible to draw a distinction.

Mr. Rogers: Oh, no. It is a matter of degree. I do not want to attempt to deliver a lecture on the manufacture of explosives or their nature, but it is not the case that an explosive used for industrial purposes can simply be turned over in the right way and used for military purposes, except in very exceptional cases, but the basis of the explosives being the same they are, of course, connected. There is no dispute about that. That must be agreed.

2942. *Sir Thomas Allen:* I do not want to cover any of the ground of criticism as outlined by Sir Philip. I want rather to deal with the statement of your company's evidence, also with the particular statement that you read to the Commission, on the broad question of policy generally. In paragraph 3 of your main statement* you say that the total sales of military products in the last five years are only 1·8 per cent. I notice that relatively the number of your employees is 1 in 43. Are we to understand from that that the wages costs are higher in the munitions section or is the production of munitions a more costly form of enterprise?

Mr. Rogers: May I be quite clear? You wish to know why the relation of employees to the amount of business is different in the two cases?

2943. *Sir Thomas Allen:* Yes.

Mr. Rogers: It is a fact that, generally speaking, the wages cost of making munitions is higher than that of making industrial explosives, but I am not quite clear at the moment as to the extent. Are you taking the amount of work in 1934?

2944. *Sir Thomas Allen:* No, I am referring to your answer to Question 5 with regard to the total number of employees.†

Mr. Rogers: I must be clear exactly where this is.

Mr. Mitchell: If you compare the percentage relationships of the two figures you will find they are almost identical.

Mr. Rogers: It depends upon which year you take.

2945. *Sir Thomas Allen:* I am taking the average over the five years.

Mr. Rogers: I should like to make it clear that the employees mentioned here have been taken as a whole; they are all the people, in whatever works they happen to be. If one wanted to make an exact comparison between the number of people employed in military production and in industrial, one would have to take the separate factories and the separate things. I think you have included in this the ammunition as well as the explosives. These things are made in different works. I do not think you can take these figures as being anything but orders of figures. They are not comparable in that sense.

2946. *Sir Thomas Allen:* Then in paragraph 4 of your main statement you say:

“To remove any misunderstanding it should be stated that, in addition to their present moderate capacity engaged in the manufacture of such products, I.C.I., with the full knowledge and desire of H.M. Government, are without subsidy maintaining for use, or in a condition capable of rapid installation for use in case of national emergency, certain plants for military explosives and small arms ammunition. These have not been employed since 1918.”

When you state “with the full knowledge of the government” are we to understand that you mean at the government's request?

Mr. Rogers: Oh, yes, definitely.

2947. *Sir Thomas Allen:* They are kept idle at the government's request?

Mr. Rogers: They are kept idle perhaps because the government does not give any orders to fill them, but the government have been anxious that we should not dispose of them.

2948. *Sir Thomas Allen:* What I want to get at is this: Are they idle at the request of the government to meet an emergency?

Mr. Rogers: May I explain what is meant by that? The easiest way is to take one case, that of the Ardeer factory, where we make cordite. At the end of the War we had a very large cordite capacity, which had been put up for the government. Then our industrial demands increased and we altered our factory arrangements for industrial explosives in the interest of efficiency and gradually ate into the area that was used for the military. We used the ground. The government were very anxious that we should not dispose of any plant. If we had to do so, thereby reducing our potential capacity, we had to inform the government. We hold certain plants which can be used in emergency. The government know of that and are anxious that we should do so.

2949. *Sir Thomas Allen:* And no subsidy is forthcoming?

Mr. Rogers: No subsidy is paid at all.

2950. *Sir Thomas Allen:* In paragraph 5 you say “But it must be apparent that there is hardly an industry in the country that is not interested in materials for military activities”. Is your point that no line of demarcation can be made between civil and military activities either in peace time or war time?

Mr. Rogers: I think the intention there is to make it plain that a war is carried on not only through the possession of explosives and guns, but through the possession of boots, shoes—every sort of thing.

* See p. 439, supra.

† Appendix 2, p. 468.

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2951. *Sir Thomas Allen*: I observed that in answer to a previous question Sir Harry said that it was not possible to separate armament production from other business. What I wanted to know was this: Does Sir Harry advance this principle as peculiarly applicable to your own industry or as a general principle with regard to all industries?

Sir Harry McGowan: I can only speak for our own industry.

2952. *Sir Thomas Allen*: In paragraph 6 you point out that any business that you do in armaments is done in open competition with manufacturers of other countries and always by British government licence, and that the materials supplied are materials considered necessary by friendly nations for purposes of national defence. To whom are you referring when you say "friendly"?

Sir Harry McGowan: I would say the British government determine which nation is friendly to us—we do not determine that.

2953. *Sir Thomas Allen*: I take it that Japan and China are both friendly to the British nation—or we might regard them as such?

Sir Harry McGowan: Yes.

2954. *Sir Thomas Allen*: Yet they might be at war with each other?

Sir Harry McGowan: Yes.

2955. *Sir Thomas Allen*: I only wanted to understand what you meant by "friendly" in that particular instance.

Sir Harry McGowan: I should say friendly in the opinion of the government.

2956. *Sir Thomas Allen*: In the same paragraph you say that the list of agreements submitted disposes of the claim that I.C.I. is directly or indirectly party to what has been designated an "international armaments ring". How would you define a "ring" in that connection, as distinct from any arrangements which you have?

Sir Harry McGowan: I would say that a "ring" connotes nearly all manufacturers of a particular product inside that ring, whereas we—there is evidence—have only arrangements with one or two people.

2957. *Sir Thomas Allen*: That would be your definition?

Sir Harry McGowan: After all, there is any amount of competition apart from ourselves and du Pont, so there can be no international ring. There is not an international ring.

2958. *Sir Thomas Allen*: In respect to any international arrangement—a ring or otherwise; call it an "understanding" or what you will—how far, in peace time or in war time, are those arrangements helpful to the British government?

Sir Harry McGowan: Are you talking from the military point of view or commercially?

2959. *Sir Thomas Allen*: From the military point of view.

Sir Harry McGowan: We have none—no agreement.

2960. *Sir Thomas Allen*: No arrangement at all?

Sir Harry McGowan: No, we have no agreement covering the technical side or the production side of military requirements.

2961. *Sir Thomas Allen*: But you are makers of military necessities?

Sir Harry McGowan: Of course we are.

2962. *Sir Thomas Allen*: My point is this, that in the event of an outbreak of war any international arrangement would be rather detrimental than otherwise to the British government.

Sir Harry McGowan: We have none; we have no arrangement that could be detrimental to the government.

2963. *Sir Thomas Allen*: That is your answer?

Sir Harry McGowan: Oh, yes, surely.

2964. *Sir Thomas Allen*: Then in paragraph 7, so far as I.C.I. is concerned you refute any suggestion that attempts have been made to stimulate arma-

ment business by newspaper propaganda, or by insinuating that others are purchasing armaments. You do advertise, I take it?

Sir Harry McGowan: Oh, yes.

2965. *Sir Thomas Allen*: What object is there in an advertisement, other than that of stimulating business?

Sir Harry McGowan: To show various foreign governments that we are in the line of business, that if they want to come to us they can. But may I say that our total expenditure in advertising military and naval products over a period of five years was £550. So we cannot be accused of extravagance in that direction.

2966. *Sir Thomas Allen*: Reverting to a point put by Sir Philip with regard to South America: I understand that your agents there are military agents, as distinct from civil.

Sir Harry McGowan: We have our own company there, our own selling organisation.

2967. *Sir Thomas Allen*: In paragraph 8 you remark that His Majesty's Government have regarded private enterprise as a vital asset in the successful defence of the country. I take it that you would agree that this is bound to be the case as long as the government is dependent upon a firm like yours for its munition supplies.

Sir Harry McGowan: Oh, surely. They are not dependent upon us completely to-day, you know.

2968. *Sir Thomas Allen*: Perhaps we will come to that a little later on. How would any change dissipate the collective potentialities of a private industry?

Mr. Rogers: I am not quite clear as to your meaning. May I have your question again, please?

2969. *Sir Thomas Allen*: How would any change dissipate the collective potentialities of a private industry as distinct from a national industry?

Mr. Rogers: You mean if the production of military material were nationalised?

2970. *Sir Thomas Allen*: Yes.

Mr. Rogers: It would simply mean that the government would not have a nucleus of people trained at all in the manufacture of military munitions.

2971. *Sir Thomas Allen*: Not if they passed through a national factory?

Mr. Rogers: Oh, yes; they would have to depend entirely on what they had in their own factories.

Sir Harry McGowan: But those factories would be standing idle for a considerable part of the year in peace time?

2972. *Sir Thomas Allen*: They would be producing, I take it, all the armaments required, idle and otherwise.

Mr. Rogers: The government would lose whatever value there is in the private manufacture of munition of war. Of course, if you assume that the national factories would be just as efficient and would not require to depend at all upon the value of industrial advance, then it might make no difference.

2973. *Sir Thomas Allen*: Is there any reason to presume that they would not be as efficient?

Mr. Rogers: I should say so.

2974. *Sir Thomas Allen*: That is your view?

Mr. Rogers: The industrial advance is so great.

2975. *Sir Thomas Allen*: In his supplementary statement Sir Harry says, "I beg the Commission to pause before they recommend anything which would destroy this vital asset to the country's safety". I take it you would not deny the obligation of the state to assume any function of private enterprise where the retention in private hands was proved to interfere with the general rights of the community.

Sir Harry McGowan: The state can do anything, can they not? That is the answer.

2976. *Sir Thomas Allen*: I presume by "vital asset" you mean your own particular organisation.

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Sir Harry McGowan: Yes, I do.

2977. Sir Thomas Allen: I would like to deal—paragraph 10 of your main statement*—with the question of the relative cost of production of private enterprise and of government factories, more particularly during the War period. You say in your supplementary statement†, “We prefer not to enter into controversy on the relative costs of private and government manufacture, as to the best of our knowledge the requisite data on comparative lines are not available”. Would you elaborate that for us a little, that we may have in our minds the clearest possible picture of what is meant?

Mr. Rogers: It is rather difficult, if I may say so, because your questions are not specific, and I feel that I can only answer them by making something which is almost equivalent to a sort of lecture, if you will pardon me.

2978. Sir Thomas Allen: I do not know how I can make them more specific. Shall I repeat what I have said?

Mr. Rogers: Yes, if you please.

2979. Sir Thomas Allen: Taking your main statement, paragraph 10. You are referring there to the relative cost of production of private enterprise and of the government factories, and you say that true comparisons are well nigh impossible, owing to varying conditions and the wide differences in methods of costing. I am asking whether you would elaborate that for us a little, that we may have a clearer vision of the picture that you want to present to us.

Mr. Rogers: In manufacturing industries, even comparing units in one industry—in our own, for instance—it is essential that the accounting systems should be similar. Much more is it likely that the systems are not similar if you are comparing a government department with an industrial corporation. What we mean is that not only are the systems of accounting different, and therefore not comparable, but also the volume of business, the volume of manufacture, may be different, and that, of course, has a tremendous influence on the cost. I do not think that I could elaborate it really more than that. It is merely a statement that they are not comparable, to begin with, because the accounting systems are different, and, again, the volume of manufacture is probably different.

2980. Sir Thomas Allen: I take it you have seen the figures submitted by Dr. Addison, who came before us. Comparative costs were submitted to us. Would you agree then that where comparative costs were available there was something to be said in favour of the Ministry of Munitions vis-à-vis private production?

Mr. Rogers: Not on equal quantity of production. I had a good deal of experience of that during the last war, and my statement is that an industrial corporation such as Imperial Chemical Industries, manufacturing the same quantity of material as a government institution, will do it at a lower cost.

2981. Sir Thomas Allen: We were glad to hear you express your willingness at any time to go into the question of profit with the government in regard to national supplies, but our trouble is rather different. The strongest argument that is put up to us against a private system of manufacture of implements of war is the incentive to profit making which the international trade affords. How would you overcome the external difficulties? Say that you were willing to meet the government on the internal difficulties.

Sir Harry McGowan: Competition takes care of the prices we get abroad. There is very intensive competition, and a scramble for business, which as a rule means a very low scale of selling prices.

* See p. 440, *supra*.

† See p. 446, *supra*.

2982. Sir Thomas Allen: You think that meets the situation?

Sir Harry McGowan: I think it does—unfortunately.

2983. Chairman: I have been requested to ask you some questions and I would like to put them now, in case I forget them. The first one is this: “Reference has been made to documents 486, 487 and 488 in Part 5 of the American Inquiry, as showing an arrangement between I.C.I. and du Pont for eliminating competition and keeping up prices. Would I.C.I. state what are the present arrangements with du Pont as regards sales of war material in Europe?” You have answered that, have you not, by saying that all the sales arrangements are covered by the document of 10th October, 1932?

Mr. Mitchell: I might elaborate that point by saying that we have already discussed with Mr. du Pont the advisability, solely on economic grounds, of ceasing this kind of activity. It pays neither of us. But pending the decision of this Commission Sir Harry decided that nothing should be done, for fear of misunderstanding.

2984. Chairman: The last existing arrangement is that of 10th October, 1932?

Mr. Mitchell: Yes.

2985. Chairman: To the next question I should have thought the answer was obvious, but they wish to have it. “What is the purpose of the firm’s numerous investments in foreign firms?” You have given us a list of the foreign firms in which you have investments and the question is: Why did you do it?

Mr. Mitchell: We thought it was a good investment for our money. If I may illustrate by the Czecho-slovakian investment, that may give the clue. The Czecho-slovakian government asked us to erect an industrial explosives factory for them. We supplied the technique and put up the factory and we took a share investment in the company for the work done.

2986. Chairman: That is a specimen case, in answer to the question why do you invest in foreign companies?

Sir Harry McGowan: Because we think it is a wise thing to do.

2987. Chairman: Why is it wise?

Sir Harry McGowan: Ah!

2988. Chairman: I will try to answer the question. First of all, I suppose, because it gives you an opportunity of seeing how the particular company is doing, if you are a shareholder.

Sir Harry McGowan: Each case is judged on its merits.

2989. Chairman: And another reason, I suppose, is because you may think it is a good investment as it stands.

Sir Harry McGowan: Yes.

2990. Chairman: And you may think that if there is a war it may be a better investment.

Sir Harry McGowan: I cannot answer that.

2991. Chairman: The third question is this: “What are the relations of I.C.I. with the I. G. Farbenindustrie and other German companies?”

Mr. Mitchell: We have close technical and other touch with the I. G. Farbenindustrie in other activities but nothing in the domain of military activity. It is a comprehensive term for the whole of the German chemical industry. We are members with them of the world cartel for dyes and the international cartel for nitrogen. We have no military arrangements with them. And with the Dynamit-Actien-Gesellschaft, which is a subsidiary of the I. G. Farbenindustrie, we have an arrangement for industrial explosives only.

Sir Harry McGowan: We collaborate with the I. G. Farbenindustrie with regard to the extraction of oil from coal.

2992. Chairman: Another question is this: “With reference to the Exhibits 496-504 inclusive of the American Arms Inquiry, Volume 5, will I.C.I. state

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MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

what was the exact position of Carames, why money had to be paid to him and why the factory was not constructed in the Argentine?"

Mr. Mitchell: This is going back 15 years. I think the Argentine factory was suggested some 15 years ago. We quoted for that factory through the medium of Carames. The German Köln-Röttweil A.G. secured the business through the firm of Retienne, but Retienne could not fulfil their obligations and the construction of the factory broke down for that reason. We had in the meantime

withdrawn from the negotiations—we and du Pont. The Germans secured the contract to erect the factory, but when the time came they could not do it. 2993. *Chairman:* Why had money to be paid to Carames?

Mr. Mitchell: As an agent for the company.

Secretary: All this correspondence is in 1931, 1932 and 1933.

Mr. Mitchell: He was simply paid for his services.

(Adjourned.)

APPENDIX I.

OBSERVATIONS OF MESSRS. IMPERIAL CHEMICAL INDUSTRIES LTD.

ON

AGREEMENTS CITED BY THE UNION OF DEMOCRATIC CONTROL

(Vide Minutes of Evidence, 7th and 8th Days, pp. 196-7.)

Reference No.	Agreement.	Explanatory Remarks.
1	E.I. du Pont de Nemours on patents and processes.	Referred to in list for Commission, Class III.
2	E.I. du Pont de Nemours on sales arrangements.	Referred to in list for Commission, Class I.
3	Solvay & Co. concerning chlorine and chemical interchange.	This probably refers to an agreement with Solvays for technical and commercial co-operation in the alkali field. It involves no military questions. Probably the term "chlorine" has been interpreted as indicating potential military use.
4	I.G. Farbenindustrie concerning interchange of information on nitric acid.	There is no such agreement.
5	Belgian Explosives Group re ownership	We have no agreement with this Group relating to ownership. Our only financial interest in any of the Belgian explosives companies is 29.89 per cent. shareholding in S.A. d'Arendonck, which company manufactures industrial explosives only.
6	Société Française Dynamit	This presumably is meant for Société Centrale de Dynamite or Société Nobel Française with whom we have an unwritten understanding as regards our respective territories for the sale of industrial explosives.
7	Carboncherie Française—obviously Cartoucherie Française.	They do not manufacture military explosives. We have a 23.3 per cent. share interest in this company. We have an agreement with them referred to in list for Commission, Class III, governing the manufacture and sale by C.F. under licence of sporting cartridges and cases.
8	Hungarian Explosives Co.	We have a 12 per cent. shareholding. This company manufactures no military explosives.
9	Norsk Sprængstofindustri re interchange of chemical information.	An agreement with this company is referred to in list for Commission, Class III, and is simply a sales and agency agreement, relating solely to industrial explosives.
10	Roumanian Explosives Co.	We have a 20 per cent. shareholding. This company manufactures no military explosives.
11	Union Espanola de Explosivos re interchange of information.	Referred to in list for Commission, Class II.
12	Comptoir Français de l'Azote	We have no direct association with these people but they are members of the international nitrogen cartel.
13	Coswig re limitation of sales	We have no agreement with Coswig, but there is an agreement between D.A.G. and Coswig regulating quotas and prices for Coswig's business in Chile, Bolivia and the Dutch East Indies in industrial explosives and detonators. This is the same agreement as that referred to under No. 22 below with Westfälische Anhaltischen Sprengstoff A.G. Coswig is merely a place name of this company.
14	Montecatini	The only agreement we have with Montecatini relates to urea-formaldehyde resins and moulding powders. They are, of course, members of the international nitrogen cartel.
15	Czechoslovak Explosives, Limited	We have a 32 per cent. interest in this company, which makes both industrial and military explosives.
16	Barbier Group re abstention arrangements	We have an agreement with the Barbier companies regulating territories for the sale of industrial explosives and accessories. This company manufactures no military explosives.

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[Continued.]

Reference No.	Agreement.	Explanatory Remarks.
17	Poudreries Reunies re sales	We have an agreement with these companies and others belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives. This agreement is referred to in list for Commission, Class III.
18	S.A. de Dynamite de Matagne re sales	
19	Société Belge de la Dynamite Nobel re abstention.	
20	Casale Ammonia Co. re interchange of information.	
21	Etab. Kuhlmann re abstention arrangements...	This probably relates to an agreement long since expired between this company, Società Italiana Ricerche Industrial and United Alkali Company relating to the use in the United Kingdom of the Casale process of manufacture of ammonia.
22	Westfälische Anhaltischen Sprengstoff A.G. re sales.	There are a number of agreements with Kuhlmann relating to sodium sulphide, saltcake, dyestuffs, resins, nitrochalk, etc. No military explosives are made.
23	Poudrerie Royale de Wetteren-Coopval re sales	See No. 13 above.
24	Norsk Sprængstofindustri A/S re abstention...	See Nos. 17, 18, 19 above.
25	Rheinisch Westfälische Sprengstoff re sales and exchange of technical information.	See No. 9 above.
26	Dervant & Huguenin re dye production ...	This may refer to agreement in list for Commission, Class II, relating to licences under patent in respect of Tetrazene cap compositions for ammunition, and Eschbach detonators.
27	Remington	This name should be Durand & Huguenin with whom agreements exist covering licences to B.D.C. to manufacture certain dyes. No military explosives are made.
28	Vickers re use of I.C.I. powder	Agreements in list for Commission, Class III, covering licences under patents in respect of ammunition with Tetrazene caps and sporting ammunition and components.
29	United Alkali re oxidation of ammonia ...	Agreements with Vickers relating to sales of ammunition are cited in list for Commission, Class I and Class II.
30	Allied Chemicals re finance	See No. 20 above.
31	Società Italiana Ricerche Industrial re abstention and markets arrangement for Casale ammonia.	No agreement exists with this company.
32	British Government and I.C.I. (F. & S.P.) Ltd. and British Dyestuffs Corp., Ltd.	See No. 20 above.
33	I.C.I. and Badische Co.	This may perhaps refer to the government guarantee of debentures to Synthetic Ammonia & Nitrates, Ltd. at Billingham and the shareholding which the government had in the Dyestuffs Corp. prior to the formation of I.C.I.
34	I.C.I. and Jardine Engineering Co.	An agreement exists relating to exchange of licences between Scottish Dyes and Badische in respect of certain colouring matters.
35	I.C.I. and Jardine Matheson & Co.	The Jardine Engineering Corp. are our agents for explosives and military ammunition in China.
36	I.C.I./Mitsubishi	Jardine Matheson & Co. are our agents for industrial explosives and accessories in China.
37	I.C.I./Royal Dutch Shell	We have no agreement of any kind with Mitsubishi.
38	I.C.I. and Lurgi Corp.	This presumably refers to the international hydrogenation patents agreement, to which Royal Dutch Shell are parties. I.C.I. has no direct agreement with the Royal Dutch.
		We have no agreement with Lurgi Ges. für Chemie und Huttenwesen m.b.H., which presumably is the company referred to.

SUMMARY.

Of the 38 agreements cited by the Union of Democratic Control it will be seen that 18 are non-existent as agreements. Of these 18 four refer to investments of ours in explosives companies, and it should be noted that of the remaining 20 agreements four only are related to munitions.

APPENDIX 2.

STATEMENT SUBMITTED ON BEHALF OF MESSRS. IMPERIAL CHEMICAL INDUSTRIES LTD.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF
AND TRADING IN ARMS,
8, Buckingham Gate, S.W.1.
23rd April, 1935.

Sir,

I am directed by the Royal Commission on the Private Manufacture of and Trading in Arms to transmit to you the enclosed copy of the Royal

Warrant of Appointment of the Commission, and to request that they may be furnished for the purposes of their Inquiry with full information under the following headings relative to Messrs. Imperial Chemical Industries Ltd., and any subsidiary companies under their control:—

1. The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.

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MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

2. The proportion of the turnover in each of the last five years, representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire and (c) foreign, orders.

3. The estimated value of plant employed in the production of arms and munitions of war that would be rendered redundant in the event of the establishment of a State monopoly.

4. The amount of declared profits of each of the last five years; and an estimate of the proportion thereof attributable to the production of arms and munitions of war.

(The above to be accompanied by published accounts for the five years.)

5. The average number of employees engaged in each of the last five years on the production of arms and munitions of war, and other products, respectively.

6. The firm's capacity for expansion for purposes of the production of arms and munitions of war (a) with, (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war?

7. Particulars of any agreements with other firms engaged in the production of arms and munitions of war, stating the names of the parties, British and foreign, to such agreements.

8. Details of the firm's present holdings of the capital of other firms, giving names (British and foreign), and of the holdings of the firm's capital by other firms, giving names (British and foreign).

9. The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

The phrase "arms and munitions of war" should be interpreted for the present purpose as including all the articles enumerated under headings (i) to (xx) of Article (1) of the Arms Export Prohibition Order, 1931 (S.R. & O., 1931, No. 413) and (b) vessels of war of all kinds, together with arms, ammunition and implements of war mounted on board vessels of war and forming part of their normal equipment. Copy of the Order-in-Council referred to is enclosed for convenience of reference.

I am at the same time to request that you will nominate a representative or representatives to appear before the Royal Commission for the purpose of giving oral evidence.

I am to add that a further communication will be addressed to you in the event of the Royal Commission desiring evidence in regard to other matters that may arise in the course of their Inquiry.

I am, Sir,

Your obedient Servant,
(Sgd.) EDWARD TWENTYMAN.

Sir H. McGowan, K.B.E.,
Chairman.

Messrs. Imperial Chemical Industries, Ltd.,
Millbank, S.W.1.

Imperial Chemical Industries, Limited.

From the Chairman (Sir Harry McGowan, K.B.E.).
Millbank, London, S.W.1.

4th October, 1935.

The Secretary,
Royal Commission on the Private
Manufacture of and Trading in Arms,
8, Buckingham Gate, S.W.1.

SIR,

With reference to the accompanying letter of to-day's date, which is the formal answer to your communication of 23rd April, 1935, I must refer to the various documents which have been sent therewith, in order that I may indicate those which are of a private and confidential nature.

For the sake of clarity and to show how the answers to Questions Nos. 1 and 2 have been reached, the figures from which these answers have been derived have been embodied in one statement marked "A".* The method adopted has involved the disclosure to the Commission of certain figures relating to all our activities, e.g., our total turnover figures. I believe you will agree it will be unnecessary, and it certainly would be misleading and prejudicial to the Company's interests, for such figures to be made public. These figures are, therefore, given to the Commission on the understanding that they are treated in strict confidence and that any questions based on them which the Commission desire to ask shall be asked *in camera*.

In answering Question No. 3 we have attempted to estimate the value of property and plant employed in military products and have furnished a table which also contains confidential figures. The total figure cannot be regarded as anything more than a careful estimate. Its preparation has involved an enormous amount of work, but I must nevertheless make it clear to the Commission that it would only be possible to ascertain the exact value of the plant by having an independent valuation by competent chemical engineers. This would entail the expenditure of much more time and money.

I am sure that the Commission will realise that the answer to Question No. 6 discloses information which His Majesty's Government would no doubt also consider should be regarded as strictly confidential.

I should be grateful if the information furnished in answer to Question No. 7 could also be regarded by the Commission as confidential because a public disclosure would obviously be unfair to our partners in these agreements. We have observed, however, that the evidence of the Union of Democratic Control contained a list of agreements. We shall give in a separate document, which can be made public, details which we consider relevant concerning these particular agreements.

The very exhaustive details submitted in reply to Question No. 8 are also by their very nature of a confidential character, and I trust that my request that these shall be so regarded by the Commission may be granted.

As to the answer to Question No. 9, I also suggest that the part of this document detailing sales for each country should not be published. The position of these countries has to be considered, and the necessity for details is met by the figures which have already been made available in the information published by the Government based on the report of the export licences which have been issued.

To assist you in meeting our requests for privacy, we have marked the documents "Private and Confidential—not for Publication," which we request should be so treated.

I am, Sir,

Your obedient Servant,
(Sgd.) H. McGOWAN.

Imperial Chemical Industries Limited,
Millbank,
London, S.W.1.

4th October, 1935.

The Secretary,
Royal Commission on the Private Manufacture
of and Trading in Arms,
8, Buckingham Gate, S.W.1.

SIR,

In further reply to your letter of the 23rd April, 1935, I have to forward you the Company's answer to the questions contained in that letter:—

* Not printed.

† Appendix I.

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MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

Question No. 1.

The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.

ANSWER.

		Per cent.
1934	...	1.6
1933	...	2.3
1932	...	2.0
1931	...	1.6
1930	...	1.5

Question No. 2.

The proportion of the turnover in each of the last five years representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire, and (c) foreign, orders.

ANSWER.

PERCENTAGE OF TURNOVER ON MILITARY PRODUCTS TO TOTAL TURNOVER.

	UNITED KINGDOM.	BRITISH EMPIRE.	FOREIGN.
	Per cent.	Per cent.	Per cent.
1934	... 72	... 23	... 64
1933	... 70	... 10	... 1.46
1932	... 68	... 11	... 1.25
1931	... 63	... 36	... 63
1930	... 46	... 54	... 50

Question No. 3.

The estimated value of plant employed in the production of arms and munitions of war that would be rendered redundant in the event of the establishment of a State monopoly.

ANSWER.

£1,316,436.

(Details of this total figure are shown in A1.)*

Question No. 4.

The amount of declared profits of each of the last five years; and an estimate of the proportion thereof attributable to the production of arms and munitions of war. (The above to be accompanied by published accounts for the five years.)

ANSWER.

	AMOUNT OF DECLARED PROFITS.	PROPORTION ATTRIBUTABLE TO ARMS AND MUNITIONS OF WAR.
	£	Per cent.
1934	... 7,965,038	1.1
1933	... 7,663,945	1.8
1932	... 6,415,423	2.1
1931	... 4,668,685	0.8
1930	... 5,129,757	1.1

(Published accounts for five years are marked A2.)*

Question No. 5.

The average number of employees engaged in each of the last five years on the production of arms and munitions of war, and other products, respectively.

ANSWER.

	ENGAGED ON PRODUCTION OF ARMS TOTAL, AND MUNITIONS OF WAR.
1934	... 41,736
1933	... 35,854
1932	... 30,610
1931	... 30,117
1930	... 34,476

Question No. 6.

The firm's capacity for expansion of the production of arms and munitions of war, (a) with, (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war.

ANSWER.

See statements annexed—"B",* "C",* "D",* and "E".*

Question No. 7.

Particulars of any agreements with other firms engaged in the production of arms and munitions of war, stating the names of the parties, British and foreign, to such agreements.

ANSWER.

These particulars are in the annexed schedules—"F".*

Question No. 8.

Details of the firm's present holdings of the capital of other firms, giving names (British and foreign), and of the holdings of the firm's capital by other firms, giving names (British and foreign).

ANSWER.

These details are shown in the annexed statements—"G"* and "H".*

Question No. 9.

The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

ANSWER.

A memorandum is attached in answer to this question.

In the event of your requiring any explanation of the accompanying documents or any further information, I shall be glad to arrange for a member of my staff, conversant with the details, to call on you.

I am, Sir,

Your obedient Servant,
(Sgd.) H. McGOWAN.

MEMORANDUM RE QUESTION No. 9.

The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

[Note.—The advertisements and brochures submitted have not been reproduced.]

ADVERTISEMENTS IN NEWSPAPERS AND SIMILAR MEDIA.

Dealing with the first part of this question the Board has never authorised any special appropriation for advertising military products which, generally speaking, only appear in advertisements indicating our general range of products. An example (marked "1") is attached.

There have, however, been occasional exceptional cases where we have been approached by certain Government organisations to advertise our products and, as an example, we attach a pull of one of our advertisements which has been appearing for the past two or three years in the *Revista Militar* (marked "2"). This review is sponsored by the military authorities in the Argentine.

We also attach ("3") a specimen of an advertisement for condenser tubes which has appeared from time to time in *Jane's Fighting Ships*.

Moreover, we were specially requested to insert a general advertisement in a Finnish newspaper during the British week which was celebrated in Helsingfors in the summer of 1933 and, in this, mention was made of our military products.

OUR OWN PUBLICATIONS.

Examples of the following are attached hereto for inspection:—

Naval and Military Explosives.

Published by Nobel Industries in 1923 and handed to Foreign Government officials on request. In some

* Not printed.

* Not printed.

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MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

[Continued.]

cases our agents have distributed copies where we considered the recipients would be interested. The supply is now practically exhausted.

Cartridges for Military Rifles and Machine-guns.

First published in 1930, in three languages, it has been distributed rather more liberally along similar lines to those adopted in the case of the *Naval and Military Explosives* brochure.

In the *I.C.I. Products Book*, of which a copy is attached, naturally mention is made in the ordinary course, of military material as part of our general products.

Smoke-producing Devices and Baby Incendiary Bombs.

Distributed in a similar manner to those mentioned above.

Smoke Floats.

Published in collaboration with Messrs. Thornycrofts.

BRITISH EMPIRE EXHIBITION AND OTHER EXHIBITIONS AND FAIRS.

From time to time we have been represented at various exhibitions and fairs, a general range of products, including those of a military nature, having been shown. As an example we would mention particularly the British Empire Exhibition held in 1924 and 1925, when the two brochures attached were published. Special reference is made to military products on pages 47-50 in the larger brochure.

SHOWCASES.

A few showcases have been made and sent to our more important offices abroad and, in a few instances, have been presented to Foreign Government officials at their particular request.

SOLICITING OF ORDERS.

The method of sale we have adopted in foreign markets is by the appointment of agents who are paid by commission, although in one or two instances a retaining fee has been paid. We attach for the private information of the Commission a list* of these agents, giving the sterling value of the business done through each agency in each of the last five years and also a note of any retaining fees. From this list it will be seen that many of the agents have done no business whatever. The rates of commission vary, but the average paid on orders during the last five years has been 3-13 per cent.

The prices obtainable have generally been so low through competition that extravagant commissions, even if these had been thought of, were impossible. The average rate reveals that agents have had nothing to give away. In most countries nowadays any military requirement such as we supply is open to public tender, and even if agents could

afford it or favour the method there are but few opportunities for bribery and corruption. We are not going to claim that never has any of our agents passed on some of his commission. We do not know, nor do we approve or consent, but the average rate of commission paid proves that there is but little scope for irregularities. It must be remembered that not every country in its purchasing of supplies has the moral standard of Great Britain, but there is no question but that there has been a great tightening up in this respect, an altogether satisfactory development as far as we are concerned.

Our agents are chosen just as any agent would be chosen, viz., with respect to character and efficiency. In some instances our agents have some technical knowledge, but as regards practically every enquiry the technical details have to be discussed with our own experts. Indeed, a feature of the business in recent years has been the very onerous specifications that have been associated with enquiries. So onerous on occasions—we might say ridiculous—that we have refused to accept them. We likewise have refused to accept unreasonably long terms of credit. In other words, we will not allow our agents to take business except under tolerably reasonable conditions of specification, price and length of credit.

The business of our agents is to keep in touch with those who specify and contract for supplies, informing them of our ability to supply and seeking permission to tender as and when anything is required. Our agents are not permitted to suggest to any Government or its officials what they ought to require. Their business is to cater for requirements as and when Governments decide to order. When a Government suggests going in for manufacturing for itself we, as a rule, direct our agents to seeking orders for manufactured goods, because it is our business to supply these goods rather than to set up factories when there is already more than sufficient capacity existing.

Only as regards the supplying of military explosives have we a selling organisation superimposed on the agents. On the Continent of Europe, and it will be noticed from our list of agents that there are some countries in which we are not interested, agents are supervised by the Paris office of the du Pont Company, the agents as regards military explosives being in a position to offer the manufacture both of du Pont's and ourselves. In the Far East we have agents in common under the supervision of Mr. Montague-Smith, but as regards the Central Chinese Government all the orders are now placed through a Chinese Purchasing Commission located in Berlin. In South America there is supervision by Mr. N. E. Bates, his headquarters being du Pont, Wilmington. The office and travelling expenses of these supervising representatives are jointly borne by du Pont's and ourselves, but all sales, excepting those to the Chinese Purchasing Commission in Berlin, pass through the agents.

* Not printed.

APPENDIX 3.

STATEMENT SUBMITTED BY MESSRS. IMPERIAL CHEMICAL INDUSTRIES, LTD.

(See Q.Q. 2771—2779).

I.C.I. SHIPMENTS TO BOLIVIA AND PARAGUAY (1928—1935), AND TO JAPAN AND CHINA (1931—1933), OF CERTAIN SUBSTANCES OF POTENTIAL USE IN THE MANUFACTURE OF WAR MATERIALS.

I.C.I. SHIPMENTS TO BOLIVIA (TONS).

	1928	1929	1930	1931	1932	1933	1934	1935
Sulphuric Acid	—	1	—	—	—	—	—	—
Chlorine	—	—	—	—	—	—	—	—
Ammonia Liquor	—	—	—	—	—	—	—	—
Anhydrous Ammonia	—	—	—	—	—	—	—	—
Sodium Nitrate	—	—	—	—	—	—	—	—
Nitric Acid	—	—	—	—	—	—	—	—
Ammonium Nitrate	—	—	—	—	—	—	—	—
Diphenylamine	—	—	—	—	—	—	—	—
Centralite	—	—	—	—	—	—	—	—
Ethylene Glycol	—	—	—	—	—	—	—	—
Dimethylaniline	—	—	—	—	—	—	—	—

I.C.I. SHIPMENTS TO PARAGUAY (TONS).

	1928	1929	1930	1931	1932	1933	1934	1935
Sulphuric Acid	—	—	—	—	—	—	—	—
Chlorine	—	—	—	—	—	—	—	—
Ammonia Liquor	—	—	—	—	—	—	—	—
Anhydrous Ammonia	—	—	4·8	1·4	—	—	—	—
Sodium Nitrate	—	—	—	—	—	—	—	—
Nitric Acid	—	—	—	—	—	—	—	—
Ammonium Nitrate	—	—	—	—	—	—	—	—
Diphenylamine	—	—	—	—	—	—	—	—
Centralite	—	—	—	—	—	—	—	—
Ethylene Glycol	—	—	—	—	—	—	—	—
Dimethylaniline	—	—	—	—	—	—	—	—

I.C.I. SHIPMENTS TO JAPAN (TONS).

	1931	1932	1933
Sulphuric Acid	—	—	—
Chlorine	1	—	—
Ammonia Liquor	—	—	—
Anhydrous Ammonia	—	—	—
Sodium Nitrate	—	—	—
Nitric Acid	—	—	—
Ammonium Nitrate	369	800	900
Diphenylamine	—	—	—
Centralite	—	—	—
Ethylene Glycol	2	22	10
Dimethylaniline	—	—	—

Note.—Ammonium nitrate is sold to two makers of industrial explosives whose output has been steadily increasing. Ethylene glycol sales have been made to merchant firms for resale, possibly as an "anti-freeze".

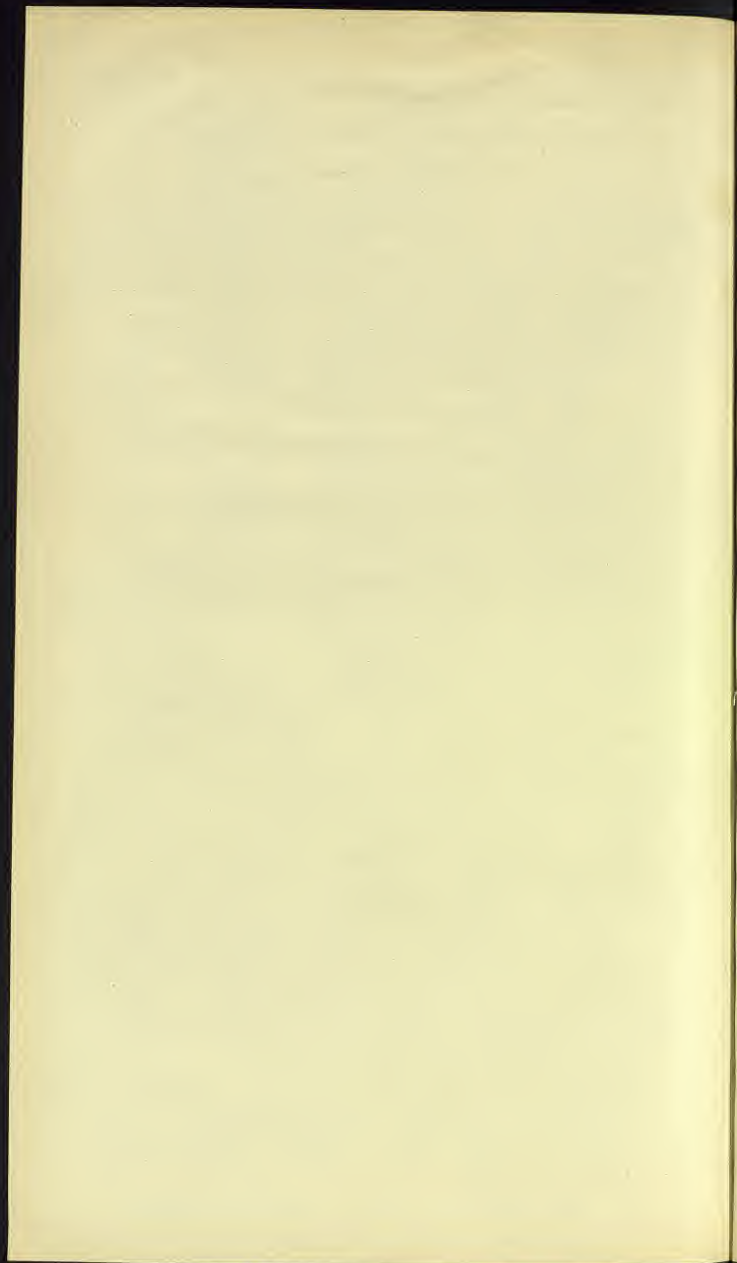
I.C.I. SHIPMENTS TO CHINA (TONS).

	1931	1932	1933
Sulphuric Acid	—	95	88
Chlorine	7·35	4·99	0·29
Ammonia Liquor	—	3·04	4·04
Anhydrous Ammonia	40	14	12
Sodium Nitrate	—	—	—
Nitric Acid	—	—	2 gallons
Ammonium Nitrate	118	443	590
Diphenylamine	1·6	—	—
Centralite	—	—	—
Ethylene Glycol	—	—	—
Dimethylaniline	8	4	20

Note.—The sales of ammonium nitrate have been made exclusively to the South Manchurian Railway for the manufacture of industrial explosives.

Dimethylaniline is sold to certain small dyestuffs manufacturers for the production of Methyl Violet and similar dyes.

S.O. Code No. 73-5-15



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

16

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

SIXTEENTH DAY

THURSDAY, 6TH FEBRUARY, 1936

WITNESSES—

- On behalf of Messrs. IMPERIAL CHEMICAL INDUSTRIES LTD.:—
Sir HARRY DUNCAN MCGOWAN, K.B.E., HON.D.C.L., HON.LL.D. (Chairman and Managing Director).
Mr. HAROLD JOHN MITCHELL (President).
Mr. JOHN ROGERS, O.B.E., F.I.C. (Director).
Col. EDMUND FRASER CRESWELL, D.S.O. (Delegate Director of Messrs. I.C.I. (Metals) Ltd.).
Mr. JAMES LAING (Chairman of the Explosives Group).
Mr. LEONARD WILLIAM BICKFORD SMITH (Manager of Foreign Department).
Mr. CHARLES STANLEY ROBINSON, M.A., F.I.C., M.I.CHEM.E. (Technical Expert).
Mr. RALPH GILES HAWKINS (Commercial Assistant).
On behalf of Messrs. WILLIAM BEARDMORE AND CO. LTD.:—
Mr. H. A. REINCKE (Chairman and Managing Director).
Mr. D. M. CAMERON (Secretary).
On behalf of Messrs. HADFIELDS LTD.:—
Major A. B. H. CLERKE, C.B.E. (Managing Director).
On behalf of Messrs. THOMAS FIRTH AND JOHN BROWN LTD.:—
Mr. ALLAN J. GRANT, J.P. (Managing Director).
On behalf of THE BIRMINGHAM SMALL ARMS CO. LTD.:—
Mr. G. D. BURTON (Managing Director).
On behalf of THE SOLEY ARMAMENT CO. LTD.:—
CAPTAIN JOHN BALL (Director).

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

SIXTEENTH DAY

Thursday, 6th February, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, P.C., G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

SIR HARRY DUNCAN MCGOWAN, K.B.E., Hon. D.C.L., Hon. LL.D.; Mr. HAROLD JOHN MITCHELL;
Mr. JOHN ROGERS, O.B.E., F.I.C.; Colonel EDMUND FRASER CRESWELL, D.S.O.; Mr. JAMES LAING;
Mr. LEONARD WILLIAM BICKFORD SMITH; Mr. CHARLES STANLEY ROBINSON, M.A., F.I.C., M.I.Chem.E.;
Mr. RALPH GILES HAWKINS; representing Messrs. IMPERIAL CHEMICAL INDUSTRIES LTD.;

called and further examined.

2994. *Sir Thomas Allen*: Sir Harry, in paragraph 10 of your statement,* you quoted two passages from the report of the Committee of Inquiry into the Royal Ordnance Factory, Woolwich, and submitted to the Minister of Munitions, Lord Inverforth, which you say appear to be particularly appropriate to the point that true comparisons between private enterprise and government factories are difficult to make. Have you that report by you?

Sir Harry McGowan: I am afraid not.

2995. *Sir Thomas Allen*: I wanted to correct what might be regarded as a wrong impression in respect to the quotations you made. We have it on record that Mr. Lloyd George, who was the first Minister of Munitions, did establish a costings system at the very beginning, which applied to all munition factories and also to Woolwich, and that in doing so a proper costing system was established, with the result, as was put to us in evidence, that it afforded a very useful check on the private manufacture, resulting in the reduction of costs. I have the report here to which you referred, and, to overcome the impression that there was no costings system at Woolwich, I would like to draw attention to it for a moment. That Committee was set up in March, 1918, I think, or in July, 1918, and reported in 1919. It says: "The Committee have directed their attention mainly to an examination of the costing system at present adopted at the Royal Ordnance Factories." I bring that out to show that a costing system was in existence. Then further down it says: "The cost accounting system at Woolwich was fully inquired into in 1902 by Mr. Morey, of Messrs. Price, Waterhouse & Co., chartered accountants, who examined the systems obtaining at certain private engineering establishments, and he stated that the system of cost accounting at Woolwich appears as well adapted to obtain the results required as that at any works he had visited. These results differ in character from those of commercial houses owing to

the absence of profit considerations and the requirements of parliamentary returns." I thought it proper that I should bring that out so that no impression might be left, arising out of the statements you quoted, that no costing system was in existence.

Sir Harry McGowan: We did not say that; we only quoted from the report submitted to Lord Inverforth.

2996. *Sir Thomas Allen*: That report also contains the statements which I have just read to you.

Sir Harry McGowan: Yes.

2997. *Sir Thomas Allen*: I think we ought to say that it is very gratifying to us to have the statement of your capacity to meet emergencies. I note, however, that Lord Mottistone, who, as Colonel Seely, was at one time Secretary of State for War, in a debate in the House of Lords on May 15th last said there was a terrifying inferiority in our capacity to adjust and expand our production for war needs; and Lord Hailsham, when he came to reply to the statement made, said he fully agreed that the danger point was our relative inferior power to expand production.—Can we take it from your statement that these observations do not apply as far as the I.C.I. is concerned?

Sir Harry McGowan: Yes, you may take it.

2998. *Sir Thomas Allen*: Under the present system the government is just a customer of yours, not a very large one. Would the loss of your United Kingdom and British Empire trade—representing only about 0.9 per cent. of your total trade—be a serious handicap to your general efficiency?

Sir Harry McGowan: No. I am not so much concerned with the profit we may lose by nationalisation as by the injury to the country.

2999. *Sir Thomas Allen*: It would be the greater loss which the nation would suffer?

Sir Harry McGowan: Surely.

3000. *Sir Thomas Allen*: Is your capacity to meet emergencies dependent in any measure upon the continuity of peace-time orders from the government?

Mr. Rogers: Certainly. It is very vital indeed, if any manufacturing concern is to expand

* *Minutes of Evidence*, 15th Day, p. 440.

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[Continued.]

when called upon, that it should have a nucleus from which to do so, and that nucleus must always have some manufacture going on all the time.

3001. *Sir Thomas Allen*: When you tell us that you are ready for an emergency, it is all dependent upon peace-time orders?

Mr. Rogers: Yes, entirely; except in so far as a process may be so well known and established that the mere keeping of plant in being is sufficient; but, generally speaking, the loss of technique with the workers and the other staff through having no orders to carry out destroys to a great extent their capacity to do what is wanted in an emergency.

3002. *Sir Thomas Allen*: Generally speaking, you are looking to peace-time orders to enable you to be efficient in time of war?

Mr. Rogers: Yes.

3003. *Sir Thomas Allen*: Now, apart from the question of profit arising out of the sale of munitions of war, it has been advanced to us—and I think, if I may say so, supported by the Peace Ballot which took place last year—that any interest in arms is not only the concern of the private manufacturer, or even the government, but is also the concern of every citizen, and every man who fights, and that on that ground a nation caring for its safety cannot afford to leave its destiny to the uncertain and uncontrolled operations of private firms. Is it your view that a dual system gives greater assurance of security than a national system could achieve, and, if so, would you suggest any strengthening or enlarging of national production in any direction?

Sir Harry McGowan: I think I have dealt with that in my remarks. I feel perfectly certain that the security of the country is ensured a hundred-fold by an association of private manufacturers with government factories; but I do think that the time has come to establish a supervisory body to co-ordinate still further these two units in national defence.

3004. *Sir Thomas Allen*: Perhaps I shall come back to that a little later.

Sir Harry McGowan: Very well.

3005. *Sir Thomas Allen*: You also say that under any modern conditions of war it would be impossible for any first-class nation to defend itself without an extensive, highly skilled and perfectly equipped chemical industry, such as is available in the I.C.I. I think we would all agree to that, but in this connection I should like to draw attention to what one witness said to us. He said that the manufacture of explosives, which is practically in the hands of the I.C.I., can easily be separated from the rest of the chemical industry and taken over by the government. Have you any views on that?

Mr. Rogers: Obviously the manufacture of explosives could be dealt with apart from any other chemicals, but not apart from the production of sulphuric acid and nitric acid. The point really is that you can easily establish an explosives factory—it is done. Holton Heath, the government factory, is one where they make such chemicals as are required for the manufacture of their explosives. That, of course, can be done, but, if I may say this, it is very unwise, if you can avoid it, to divorce even those chemical productions from other chemical productions.

3006. *Sir Thomas Allen*: That is what I wanted to get at. Frequent references have been made to the evidence of the Union of Democratic Control, but I notice that when they come to suggestions and proposals they appear not to be very arbitrary. Perhaps you can help us in that direction. The suggestions made by them were, in the main, three: firstly, that the manufacture of all industrial and military explosives should be nationalised; secondly, that the private manufacture of poison gas should be prohibited; and thirdly, that the export of raw materials likely to be used in the manufacture of explosives and poison gas should be made subject to licence. Have you any objections to those three proposals?

Chairman: You had better have them before you before you answer. Have you them?

Mr. Rogers: No.

3007. *Sir Thomas Allen*: I will read them again. First, have you any objection to the proposal that the manufacture of all industrial and military explosives should be nationalised?

Mr. Rogers: The manufacture of industrial and military explosives?

3008. *Sir Thomas Allen*: Yes.

Mr. Rogers: These reasons have been given by Sir Harry, but I am not at all in agreement with such a suggestion. To my mind, nationalisation to a certain extent for military purposes is quite debateable, but not the other. I see no point in it at all; I see no reason why that should be done, any more than you should nationalise the supply of steel drills for mines. Explosives are used in mines for the same purpose.

3009. *Sir Thomas Allen*: Second, have you any objection to the proposal that the private manufacture of poison gas should be prohibited?

Mr. Rogers: I know nothing about the private manufacture of poison gas.

Sir Harry McGowan: We do not do it.

3010. *Sir Thomas Allen*: You have no observations to make on that?

Mr. Rogers: No we know nothing at all about the private manufacture of poison gas.

3011. *Sir Thomas Allen*: Third, have you any objection to the proposal that the export of raw materials likely to be used in the manufacture of explosives and poison gas be made the subject of licence?

Mr. Rogers: That seems to me to be very curious; because if one takes substances that are used to make explosives they are substances which are in very common use for all sorts of purposes. Glycerine is very largely used by the tobacco industry; cotton, nitric acid, sulphuric acid. Chlorine—are you dealing with poison gas only?

Chairman: No.

Sir Thomas Allen: I am simply dealing with the question that they should be made subject to licence.

Chairman: Their recommendation was quite general.

Mr. Rogers: I cannot conceive that that would be very practicable in view of the fact that nearly all the substances used are used in even a very much wider sense in peace-time in ordinary industry.

3012. *Sir Thomas Allen*: You also advance the opinion that the proposal to nationalise all factories engaged in the production of munitions could only be carried out at tremendous cost and would be economically unsound. When you make that statement are you thinking in terms of starting new national industries from their foundation without any regard to existing facilities?

Mr. Rogers: My observations, if I may say so, had respect to both; either taking over or starting *de novo*.

3013. *Sir Thomas Allen*: It has been put to us that the scattered system now prevailing among firms in this country—scattered all over the country—is in itself uneconomic, and that a more centralised system would be very beneficial and would reduce cost.

Sir Harry McGowan: The scattering of factories might minimise the risk of bombing during war.

3014. *Sir Thomas Allen*: That is conceivable.

Mr. Rogers: As far as the I.C.I. factories are concerned, they are not spread about in the sense suggested. We have already attended to that matter of concentration in so far as we consider it advisable. Your observations may apply to other concerns with regard to which I am not familiar with the details, but not to the I.C.I.

3015. *Sir Thomas Allen*: It has been pointed out to us by one witness that it would be unreasonable

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[Continued.]

to single out a particular industry for the establishment of a monopoly. In that connection the witness reminded us, or rather, told us, that it was unscientific to talk of the arms industry as a whole; you must, he said, talk of ships as ships, heavy armaments as heavy armaments, aeroplanes as such, and chemicals as such, as really separate propositions. Would you agree with that?

Sir Harry McGowan: Separate from what point of view?

3016. *Sir Thomas Allen:* That each of these main implements of war should be treated as an entity.

Sir Harry McGowan: I am not prepared to advance an opinion on that, but I am prepared to say that the chemical industry should not be.

3017. *Chairman:* The point was that you might have to deal with each branch separately in the sense that you might apply a different remedy; one might be nationalised at one stage, and another might be nationalised at another stage, and so forth. I think that is what he was driving at, but your view is against nationalisation at any time?

Sir Harry McGowan: Undoubtedly.

3018. *Sir Thomas Allen:* Then you go on to say that it should not be assumed that executive and technical men who have been successful in commercial life would necessarily be willing to throw in their lot with a state monopoly. What I would like to ask you is this: Is it the inference that all executive and technical men engaged in private trade are actuated by the profit motive?

Sir Harry McGowan: No; I would not say that for a moment.

3019. *Sir Thomas Allen:* I ask you that question for this reason: I personally and, I think, the Commission as a whole, have been greatly impressed by the witnesses who have come here who were employed in private firms, the ones in high places, and government servants; they have impressed us with their ability, their general efficiency, their capacity to control a great industry, and I for one cannot but believe that they would equally have continued to serve the state if a state monopoly had been the government policy. That is my point.

Sir Harry McGowan: That is a question of opinion.

3020. *Sir Thomas Allen:* You also say that under a national system the incentive to national rivalry would tend to prejudice the maintenance of a high standard of efficiency. Nationally, you have removed or absorbed all rivalry—you would agree to that?

Sir Harry McGowan: What is that?

3021. *Sir Thomas Allen:* Nationally, you as the I.C.I. have removed or absorbed all rivals?

Sir Harry McGowan: No, no, no. We are not a monopoly; we have not embraced all the chemical manufacturers of the country, or anything like it.

3022. *Sir Thomas Allen:* That is your view, is it?

Sir Harry McGowan: It is a statement of fact; it is not a question of my view.

3023. *Sir Thomas Allen:* As far as you have gone you would claim that you are as efficient as ever, in fact more efficient than at any time of your existence?

Sir Harry McGowan: Yes.

3024. *Sir Thomas Allen:* And the further you go, if you could embrace the whole you would be more efficient still?

Sir Harry McGowan: I do not say that.

3025. *Sir Thomas Allen:* You do not think so?

Sir Harry McGowan: I do not say so.

3026. *Sir Thomas Allen:* My point was that if you go on absorbing you would naturally do so in the interests of efficiency.

Sir Harry McGowan: We might become unwieldy.

3027. *Sir Thomas Allen:* That is your point with regard to a national monopoly. I would like you, if you would, to elaborate a little further your answer to Sir Kenneth Lee yesterday when we were dealing with the question of the conscription of industry in time of war. Do you mean, in the statement you advance, anything more than this: that

the I.C.I. would be at the full disposal of the government during a time of emergency in respect to war supplies, but that for all other purposes it should be free?

Sir Harry McGowan: I would say at once that one must relate to the other, war supplies having priority.

3028. *Sir Thomas Allen:* War supplies would have priority?

Sir Harry McGowan: They must have priority.

3029. *Sir Thomas Allen:* We follow that.

Sir Harry McGowan: Then, of course, we must depend on the government to tell us to what extent we must make chemicals to keep certain vital industries going even during war.

3030. *Sir Thomas Allen:* I notice that you are not averse to some strengthening of the licensing system, and you do refer to the proposals made at Geneva by the Americans. How far are you in favour of those proposals?

Sir Harry McGowan: We are rather opposed to them now, on reflection. We think that foreign governments would object to a disclosure of the business we were doing with them, and I do not think it would help the cause of peace at all.

3031. *Sir Thomas Allen:* Speaking of the government as suppliers you contemplate that international complications would ensue that would embarrass the government. The government can say "Yes" or "No" under the licensing system, cannot it?

Sir Harry McGowan: Are you speaking of military explosives?

3032. *Sir Thomas Allen:* Yes. I am dealing with your statement. You say that you contemplate that international complications would ensue that would embarrass the government if it was the exporter.

Sir Harry McGowan: I think I referred more to chemicals generally in my remarks.

3033. *Sir Thomas Allen:* But do you contemplate the government being generally an international dealer in chemicals?

Sir Harry McGowan: I do not; I think it is quite impossible.

3034. *Sir Thomas Allen:* But do you contemplate it?

Sir Harry McGowan: Quite impossible.

3035. *Sir Thomas Allen:* My point is this: that if it is competent for the government now to deny any international supplies through a licensing system, where would the complications arise if it were the supplier itself?

Sir Harry McGowan: My remark applies to military explosives.

3036. *Sir Thomas Allen:* Yes.

Sir Harry McGowan: To propellants or ammunition. My remark was more of a general character if they nationalised the chemical industry, because then they would be competing with private manufacturers in other parts of the world, which would be intolerable.

Sir Thomas Allen: It does seem to me that the root of the munitions problem is that only highly industrialised countries can profitably manufacture appreciable quantities of arms. I am informed, for example, that 90 per cent. of the total world's exports are from ten producing countries, and that at Geneva no single objection was put up by any government against purchase from another government.

3037. *Professor Gutteridge:* Arising out of that last question put to you by Sir Thomas Allen, we were told at an earlier sitting of the Commission that the export of poison gas to Italy had been prohibited. Do you know anything about that?

Sir Harry McGowan: That is so.

3038. *Professor Gutteridge:* Why was it necessary to prohibit the export of poison gas if none is being made?

Sir Harry McGowan: We had not been doing it, but I have no doubt the government took the precaution of saying that it should not be exported.

3039. *Professor Gutteridge:* Do you know of any other firm making poison gas?

Sir Harry McGowan: Not to my knowledge.

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[Continued.]

3040. *Professor Gutteridge*: Do you think it was merely a precautionary measure?

Sir Harry McGowan: I think so.

3041. *Professor Gutteridge*: Are there any explosives used either in agriculture or for general commercial purposes which are also available at once in the military sense?

Mr. Rogers: Trinitrotoluol.

3042. *Professor Gutteridge*: Is that "T.N.T."? Excuse my ignorance on these matters.

Mr. J. Rogers: Yes. There are others, of course.

3043. *Professor Gutteridge*: Detonators serve a double purpose, too, do they not?

Mr. Rogers: Yes; but generally the war detonator is of a different type.

3044. *Professor Gutteridge*: You could not tell me this, I suppose: How does the French powder monopoly deal with a situation of that kind?

Mr. Rogers: I am afraid I could not tell you exactly.

3045. *Professor Gutteridge*: You do not know?

Mr. Rogers: No.

Mr. Smith: A situation of what kind?

3046. *Professor Gutteridge*: There is a monopoly, I understand, in military explosives and propellants in France; they are made in the government factories?

Mr. Smith: Yes.

3047. *Professor Gutteridge*: Do the French government run a dual system—that is to say, take T.N.T.—is that manufactured in a state factory and also in private factories, or how do they cope with that situation?

Mr. Smith: There is no T.N.T. manufactured in private factories; the state is the only manufacturer, and will supply anyone, of course.

3048. *Professor Gutteridge*: Are they, as a matter of fact, in the market in the commercial sense at all, do you know?

Mr. Smith: Direct to the consumer?

3049. *Professor Gutteridge*: Yes.

Mr. Smith: I really do not know. I think not as a rule.

3050. *Professor Gutteridge*: I think it was Sir Harry who told us that if you had national factories for military explosives and propellants there would necessarily be long periods during which those factories would have to stand idle. Could you go a little further into that? What reasons do you assign for that?

Sir Harry McGowan: I say that the peacetime requirements of various products for warlike purposes would not keep those factories occupied from January to December.

3051. *Professor Gutteridge*: You mean they would build up reserves quickly and then there would be nothing for them to do?

Sir Harry McGowan: Very likely.

3052. *Professor Gutteridge*: Would that mean that they would have to dismiss their hands?

Sir Harry McGowan: I think that is obvious unless they want them to stand doing nothing at all. 3053. *Professor Gutteridge*: I do not want to go over well-trodden ground, but I have a diagram in front of me, which you have no doubt seen, prepared by the Union of Democratic Control, which purports to show all the ramifications of your business; it is Fig. 2 (b).^{*} There is a circle in the middle and there are lines radiating in all directions. There are a very large number of different companies there. There is Bickford & Co., Austria, for instance—is that still in existence?

Sir Harry McGowan: Yes. They make safety fuses for mining purposes.

3054. *Professor Gutteridge*: Not military?

Sir Harry McGowan: No.

3055. *Professor Gutteridge*: I suppose you are interested in it?

Sir Harry McGowan: Yes.

3056. *Professor Gutteridge*: Cartoucherie Française?

Mr. Mitchell: We have a 23 per cent. interest.

3057. *Professor Gutteridge*: Cartoucherie Belge?

Mr. Mitchell: They have ceased to exist.

3058. *Professor Gutteridge*: Then they came out. Société Anonyme d'Arendonck?

Mr. Mitchell: We have an interest in that—it is an industrial explosives works—30 per cent.

3059. *Professor Gutteridge*: Then the Vise Company?

Mr. Mitchell: That is a small safety fuse factory in which we have a minority interest. They make safety fuses for the mines in Belgium. It has nothing to do with armaments.

3060. *Professor Gutteridge*: The Barbier group?

Mr. Mitchell: That is an industrial concern. No interest at all.

3061. *Professor Gutteridge*: I gather by its name that Comptoir Français de L'Azote deals in fertilisers?

Mr. Mitchell: Yes.

3062. *Professor Gutteridge*: Then the Poudreries Réunies?

Mr. Mitchell: We have no interest in them.

3063. *Professor Gutteridge*: No interest at all?

Mr. Mitchell: We have working arrangements.

3064. *Professor Gutteridge*: What do you mean by "working arrangements"?

Mr. Mitchell: Selling arrangements.

3065. *Professor Gutteridge*: Allocation of territory?

Mr. Mitchell: Allocation of customers in some cases.

3066. *Professor Gutteridge*: I do not want to go all round the circle, but I do not know whether someone could indicate which of these have ceased to be of importance.

Mr. Mitchell: General Motors Corporation—that is a motor-car concern. North American Chemical Company—

3067. *Professor Gutteridge*: When you say you have no interest you mean you have nothing whatever to do with them. May I take it generally that there are a great number of companies on this diagram with which you have nothing whatever to do? These diagrams have been very freely used, and therefore I want to know how far we can rely on them.

Mr. Mitchell: Might I supply the Commission with a note on the whole of these companies? Perhaps that would be simpler.

3068. *Professor Gutteridge*: Yes. It will save time.

Mr. Mitchell: We will give you a note of each one of these companies saying what our interest is, if any.*

3069. *Professor Gutteridge*: There are companies mentioned here which you do not deal with in your confidential statement.

Mr. Mitchell: You may take it that none of these companies touch the vital issue.

3070. *Professor Gutteridge*: You remember the form that your confidential statement took. When I come to look at this diagram there are companies here not mentioned on that list.

Mr. Mitchell: We will submit those to you later.

3071. *Professor Gutteridge*: That will save time.

Mr. Mitchell: The answer is that there are very few concerns in that with which we have any interest whatsoever.

3072. *Professor Gutteridge*: When you say "no interest" you mean you have no associations of any kind?

* Appended to Minutes of Evidence, 7th and 8th Days.

* See Appendix 1, p. 503.

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[Continued.]

Mr. Mitchell: If we say no interest we mean that; but we have an indirect association with some of them.

3073. *Professor Gutteridge*: What do you mean by that?

Mr. Mitchell: It may mean they are in a cartel. The Belgian company that you mentioned is in a cartel in Belgium with a company in which we have a minority interest.

3074. *Professor Gutteridge*: You mean it is a very indirect association?

Mr. Mitchell: The d'Arendouck company is a company in which we have a small interest. It is in a cartel for the sale of explosives in Belgium. It does not sell outside Belgium. The Poudreries Réunies is also a member of a cartel; so that in that very indirect way we have an association with them, but we have no control at all over their activities.

3075. *Professor Gutteridge*: I suppose you would be willing to state the nature of your interest?

Mr. Mitchell: Yes. You have them in the chart which is before you in our confidential document.

3076. *Professor Gutteridge*: I do not think it covers all of them.

Mr. Mitchell: No; it does not cover these, I assure you.

3077. *Professor Gutteridge*: If necessary you would give us—

Mr. Mitchell: Any link of that kind.

Professor Gutteridge: Thank you.

3078. *Dame Rachel Crowley*: You would not object to that being annexed to our public proceedings?

Mr. Mitchell: Not at all.

3079. *Professor Gutteridge*: There is one name which has been mentioned in connection with you which does not appear here, but it does appear in the proceedings of the American Inquiry, and that is Bofors. Do they make chemicals?

Mr. Mitchell: Yes; and military explosives.

3080. *Professor Gutteridge*: Have you any interest in them?

Sir Harry McGowan: They are our chief competitors.

3081. *Professor Gutteridge*: That brings me to another point. I should like to know a little more on this question of competition. First of all, with regard to our own government, is there anyone else who supplies the government except you and the national factories?

Sir Harry McGowan: For what—for cordite?

3082. *Professor Gutteridge*: For military stores of any kind.

Sir Harry McGowan: I think that we alone of private manufacturers make cordite, but Greenwood & Batley and other firms made ammunition.

3083. *Professor Gutteridge*: You are the only firm?

Sir Harry McGowan: We are the only manufacturers of cordite, but there is another firm, Greenwood & Batley, who make military ammunition—that is, cartridges.

3084. *Professor Gutteridge*: They have to get the cordite from you?

Sir Harry McGowan: Or the government factories.

Mr. Rogers: There are other manufacturers of T.N.T.

3085. *Professor Gutteridge*: Are there many of them?

Mr. Rogers: One other at least.

3086. *Professor Gutteridge*: Is there any real competition between you and them for the supply of government requirements?

Mr. Rogers: Yes, definitely.

Mr. Laing: I do not know their prices; they do not know mine. We have real competition with one other manufacturer.

3087. *Sir Philip Gibbs*: Could we have the name of that other manufacturer?

Mr. Laing: Athole Allen of Stockton-on-Tees.

3088. *Professor Gutteridge*: There is real competition for, at all events, certain military requirements as between you and other British firms?

Mr. Laing: Yes, for most of them.

3089. *Professor Gutteridge*: Then it is incorrect to say that I.C.I. has a virtual monopoly so far as military stores supplied to our government are concerned?

Sir Harry McGowan: What do you mean by "monopoly"—as regards selling price or as regards output?

3090. *Professor Gutteridge*: I think that the meaning the witness attributed to it was that if the government wanted anything they had to go to you for it.

Sir Harry McGowan: That is correct for certain articles.

3091. *Professor Gutteridge*: No doubt there are certain things which you make and no one else makes.

Sir Harry McGowan: Yes.

3092. *Professor Gutteridge*: There are others as to which you are in competition?

Sir Harry McGowan: Yes.

3093. *Professor Gutteridge*: It all depends on the circumstances of the particular thing in question?

Sir Harry McGowan: Yes.

Mr. Rogers: It might help you if I mentioned something. There is a substance used by the government in propellant powders which happens to be made by us in our dyestuff works, which is also made by other people, and we regularly lose the contract and gain it again through competition.

3094. *Professor Gutteridge*: They get tired of you and go to someone else?

Mr. Rogers: No; they probably get a lower price from someone else.

3095. *Professor Gutteridge*: And then find that they cannot make it pay?

Mr. Rogers: We have sometimes to cut our price.

3096. *Professor Gutteridge*: Of course, you make small-arms ammunition?

Mr. Rogers: Yes.

3097. *Professor Gutteridge*: Is there any competition in that?

Mr. Rogers: Yes. I have just mentioned the name of Greenwood & Batley; they make ammunition.

3098. *Professor Gutteridge*: Small-arms ammunition?

Sir Harry McGowan: Yes.

3099. *Professor Gutteridge*: I want now to turn to your foreign trade. I am a little bit puzzled by this: You speak, I think, of intense competition; if that is so, I find it a little difficult to understand, in view of the fact that you and du Pont together must be a pretty formidable combine.

Sir Harry McGowan: Both of us are very competitive in all we do, and we have competitors in Bofors.

3100. *Professor Gutteridge*: With whom you have no connection?

Sir Harry McGowan: No; and then there are competitors in France.

3101. *Professor Gutteridge*: I am rather anxious to exclude competition by any company like that Czecho-slovak company in which you are shareholders.

Sir Harry McGowan: I would remind you that there are twenty small-arms manufacturers competing for business all over the world.

3102. *Professor Gutteridge*: Manufacturing cartridges, you mean?

Sir Harry McGowan: Yes.

3103. *Professor Gutteridge*: Twenty?

Sir Harry McGowan: Yes; so that there is plenty of competition.

3104. *Professor Gutteridge*: Does that apply to explosives, too?

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[Continued.]

Mr. Laing: I could name five countries at the moment which are very strong competitors for any business which is going.

3105. *Professor Gutteridge:* Will you name them; because we want to get to the bottom of this.

Mr. Laing: Sweden, and Norway to some extent.

3106. *Professor Gutteridge:* Sprengstoff?

Mr. Laing: Yes. Poland; Belgium has been mentioned; France to a little extent; and Italy, before the present war—Italy very definitely.

3107. *Professor Gutteridge:* They are in active competition with you all the time, are they?

Sir Harry McGowan: Yes.

Mr. Laing: Yes.

3108. *Professor Gutteridge:* Do they cover the same range that you do, or are the same remarks applicable to them all—that there are certain things which can only be got from you?

Sir Harry McGowan: That is so.

3109. *Professor Gutteridge:* Is the world competition rather wider than the home competition in that sense?

Sir Harry McGowan: Yes, definitely.

3110. *Professor Gutteridge:* Are the Germans in the market at all?

Mr. Laing: Yes, now.

3111. *Professor Gutteridge:* I take it the result of that would be to intensify the competition?

Sir Harry McGowan: Yes.

3112. *Professor Gutteridge:* I want to ask you a few questions about licensing, which strikes me as a very important matter. First of all, I think I am right in saying—correct me if I am wrong—no licence is necessary for materials which could be converted either into military propellants or explosives, as the case may be?

Sir Harry McGowan: I understand not.

3113. *Professor Gutteridge:* That is quite clear, is it?

Sir Harry McGowan: I am so advised.

Mr. Laing: Yes, that is so.

3114. *Professor Gutteridge:* So far as you know, no attempt has been made during the present crisis to stop the export of any of those materials?

Sir Harry McGowan: Not so far as I know.

3115. *Professor Gutteridge:* What, in your opinion, would be the effect on your business of a requirement that these raw materials should require a licence for export?

Sir Harry McGowan: It is very difficult to estimate.

3116. *Professor Gutteridge:* Cannot you give me some idea?

Sir Harry McGowan: I am afraid I cannot.

3117. *Professor Gutteridge:* Would it be serious?

Sir Harry McGowan: It would need a good deal of investigation.

3118. *Professor Gutteridge:* Take chlorine, for instance.

Sir Harry McGowan: Would you suggest that chlorine should not be exported at all to any country that might be disposed to use it for poison gas?

3119. *Professor Gutteridge:* It has been suggested, but I do not suggest it. I am not here to make suggestions; I am here to receive them.

Sir Harry McGowan: If it is suggested, that would affect our export business very materially.

3120. *Professor Gutteridge:* I suppose you export very large quantities of chlorine?

Mr. Robinson: No; our export of chlorine is a small percentage of our total production for all purposes. If I might just help you, I will explain the connection of chlorine. I do not know much about poison gas myself, but in some of the evidence which has been read before this Commission allusion has been made to mustard gas. I understand also from the evidence given by the Union of Democratic Control—I did not know myself—which I have checked, that mustard gas is made from the raw materials chlorine, ethylene (which is obtained from alcohol) and sulphur. Those are the

essential raw materials. With regard to alcohol and sulphur, we do not deal with those raw materials. I suppose they can be obtained anywhere in the world, especially alcohol. With regard to chlorine, that is just one thing. Any country that desired to cover, as it should do, in defence its own requirements of, say, mustard gas, in an emergency can quite easily make its chlorine. The method they would employ would not be the method that we employ, which is based on industrial requirements where you must produce cheaply. But economics in war-time do not matter so much; it is simply that if you have a method you can employ it; and the alternative method which I have seen working in other countries is to take ordinary common salt pyrolusite and sulphuric acid, which are very widely distributed throughout the world; you bring those together and you make chlorine gas, and it is all you want to complete the chain of raw materials from which you can make mustard gas.

3121. *Professor Gutteridge:* I gather that the inference you are drawing from that is that even if you had a licensing system it would not be very much good, because mustard gas can be made anywhere?

Mr. Robinson: Yes. I would like to mention one other point. The assumption from the evidence which has been given is that it is a very easy matter once you have chlorine to make mustard gas. I do not think that was the experience of the British government during the War. I was rather young then and was not in contact with such matters, but I myself believe that if I were given the raw materials for making mustard gas I should, with my twenty years' experience of all kinds of chemical manufacture, have an extremely difficult job.

3122. *Dame Rachel Crowley:* The alternative method that you just mentioned, speaking as an ex-chemist, would be a very great waste of time and a very great waste of money, would it not? There would have to be very extraordinary circumstances if anyone bothered to apply your common salt method?

Mr. Robinson: I think not; because in Johannesburg—I know something about the gold-mining industry; I lived there—all the gold must be refined and separated from silver; you need chlorine for that, and you need several tons a year. A few hundred tons of chlorine, as has been said in this room, would go a very long way in the manufacture of mustard gas. They have made several hundreds of tons of chlorine by that method, and they find it economical and they find it cheaper for industrial purposes to make it that way than to cart chlorine from this country and to carry it up country about 400 miles. It is an economical method; otherwise the gold-mining industry in South Africa would not employ it. I suggest that is an answer to your question.

Dame Rachel Crowley: It is an answer to some extent, certainly.

3123. *Chairman:* You do not want very much, I suppose; if you want to make mustard gas it does not require very much chlorine in order to kill two or three hundred people.

Mr. Robinson: That has been stated at some length in the expert evidence given by the Union of Democratic Control. I think there is an estimate made there that a film of mustard gas over a certain area could quite possibly kill hundreds of thousands of people. This requires very few tons of mustard gas, and a still smaller quantity of chlorine.

3124. *Professor Gutteridge:* You export T.N.T., do you not?

Sir Harry McGowan: Yes.

3125. *Professor Gutteridge:* What would be the effect on requirements, with all your experience, if the exports of T.N.T. were licensed?

Mr. Laing: They are just now—military material.

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[Continued.]

3126. *Professor Gutteridge*: Have you found that that hampers your trade in T.N.T.?

Mr. Laing: No. We do not object to licensing. I do not think we would say that it hampers us; we believe in it.

3127. *Professor Gutteridge*: It has been suggested that when you receive orders for these things you should have to obtain permission before you accept the orders. Would you object to that?

Mr. Laing: No.

3128. *Professor Gutteridge*: You do not accept the order until you know whether the government will let you export?

Mr. Laing: That is so.

3129. *Professor Gutteridge*: Another suggestion has been made—I expect you are familiar with it—and that is this: that all orders received for ammunition from abroad should be made public. What would the effect of that be on your business? Supposing you got an order for T.N.T. for "Ruritania"?

Sir Harry McGowan: It think it would be a little unfair to us; we would be disclosing to competitors in our business what we were doing; and I think it would be unfair to the purchaser too.

3130. *Professor Gutteridge*: When you say "unfair to the purchaser" you mean that it would enable other people to know what he is doing—is that what you mean?

Sir Harry McGowan: Yes.

3131. *Professor Gutteridge*: As a matter of fact, I think it was our chairman who made this suggestion—that the remedy in this case may be worse than the evil; that if you let A know what B is buying, that will encourage A to go and buy more.

Sir Harry McGowan: Yes.

3132. *Professor Gutteridge*: We have had a number of proposals put before us: one was that all munitions exported from this country should be purchased through a government agency or board—that is to say, instead of going direct to the producer in Great Britain the foreign importer should have first to go through a board, and he would have for that purpose to put his orders through that board. Have you considered that question?

Sir Harry McGowan: I see no advantage in that at all.

3133. *Professor Gutteridge*: You do not think that any benefit would result from it?

Sir Harry McGowan: No. What would the board do?

3134. *Professor Gutteridge*: You must not ask me questions; but, of course, what is suggested is that the board would act as a kind of filter and prevent certain things which are complained of.

Sir Harry McGowan: We think that can be done effectively now by the form of licensing.

3135. *Professor Gutteridge*: In fact you are in favour of the system of licensing, and possibly a stiffening up a bit. What is your procedure when you ship ammunition abroad; you first of all get your licence?

Mr. Hawkins: Yes.

3136. *Professor Gutteridge*: I do not want to trouble about the actual getting of the licence; but when you have it, is there anyone here who can tell me what the office does with it—I think it is important.

Mr. Hawkins: The licence is handed to the customs officer when the shipment is made.

3137. *Professor Gutteridge*: That is not quite what I wanted to know. You first of all pack your goods?

Mr. Hawkins: Yes.

3138. *Professor Gutteridge*: Do you put anything on them which shows what they are?

Mr. Hawkins: Yes. We are bound by the Explosives Act to state what the contents are, and also the shipping marks.

3139. *Professor Gutteridge*: You are in rather a special position as regards that matter—you have to label the goods?

Mr. Hawkins: Yes.

3140. *Professor Gutteridge*: Otherwise you are liable to a very heavy fine?

Mr. Hawkins: Yes.

3141. *Professor Gutteridge*: So that it would be very difficult in your case to evade it; you would run a very big risk in endeavouring to evade it?

Sir Harry McGowan: Impossible.

3142. *Professor Gutteridge*: Therefore, possibly in your case the licensing regulations are more effective than they might be in the case of machine guns, which can be packed up as pianos or perambulators?

Sir Harry McGowan: Yes.

Mr. Mitchell: All these goods have to pass through various hands—shipping hands, customs, and other people. Every one of those individuals requires to see the licence and requires to see that the package is properly marked in accordance with the Explosives Act, and the ship will not take the stuff unless the stuff itself is properly marked and licensed.

3143. *Professor Gutteridge*: I know from my own experience during the War that when shipping explosives you took every possible precaution to see that every possible requirement was observed.

Mr. Mitchell: One is compelled to.

3144. *Professor Gutteridge*: I think we have covered the ground pretty thoroughly. Is there anything else that you would like to say?

Sir Harry McGowan: I think not. We have covered the ground, I think, very exhaustively, and I hope we have given you all the information you wanted.

Professor Gutteridge: I think you have helped me, as far as I am concerned.

Chairman: Yes. I think we may fairly say you have given us all the information we have asked for, and I think that is all.

3145. *Sir Philip Gibbs*: I understood from you definitely yesterday that you do not make poison gas at all. Did I also understand that you have no research into poison gas?

Mr. Rogers: Yes, that is so.

3146. *Sir Philip Gibbs*: Have you no research laboratory engaged in investigating the latest poison gases?

Mr. Rogers: No.

3147. *Sir Philip Gibbs*: And therefore you are not dealing at all at the moment with any deterrents against poison gas?

Mr. Rogers: No, I rather think we are not. I am not quite certain of that. For instance, if we are asked about an antidote or a corrective to mustard gas we should say bleaching powder. If the government asked us to do anything about bleaching powder for such a purpose we would do it; but I am not aware of anything of any importance that we are doing at the moment even in that direction.

3148. *Sir Philip Gibbs*: Are you aware at all of foreign poison gases?

Mr. Rogers: I personally have no knowledge. We know practically nothing about poison gases; we are not interested.

3149. *Sir Philip Gibbs*: Can you tell me definitely that your research department is not interested in that?

Mr. Rogers: Yes.

3150. *Dame Rachel Crowdy*: What would be the effect on the I.C.I. as you see it if the export of lethal substances and lethal weapons were abolished altogether?

Sir Harry McGowan: In the form of raw materials?

3151. *Dame Rachel Crowdy*: Yes; and lethal substances and weapons.

Sir Harry McGowan: I can only repeat what I said a few minutes ago—I think it is a question of calculation, and I cannot answer off-hand.

3152. *Dame Rachel Crowdy*: Would you be able to work out something like that?

Sir Harry McGowan: I think we could.

3153. *Dame Rachel Crowdy*: When I speak of lethal weapons I am thinking of things which I must not pronounce—baby bombers, and so on. Would you let the Commission have something of that kind?

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[Continued.]

Sir Harry McGowan: Yes.*

3154. *Dame Rachel Crowdy:* *A propos* of the question raised both by Professor Gutteridge and Sir Thomas Allen, I gather you have decided that you would be against any international disclosure of licences?

Sir Harry McGowan: Yes.

3155. *Dame Rachel Crowdy:* Do not you think there might be a good deal of value in having the power of comparison?

Sir Harry McGowan: I am afraid not.

3156. *Dame Rachel Crowdy:* I know that you personally dislike it when there is any comparison made between the arms traffic and the drugs traffic, but, of course, both have a legal use and both have unfortunately been used illegally, so that there is some comparison. I remember in Geneva, when we finally got an international agreement that an international licensing system should be established and that importers' certificates should be disclosed, the amounts they covered were different. The very first case I remember was the case of the export of a particularly dangerous drug which we were trying to control, where country *x* said they had exported 1,100 kilos, to country *y*; country *y* in its turn said that it had imported only one kilo. I think you would get exactly the same thing arising if you could have a comparison of the export and import of arms.

Sir Harry McGowan: With all deference, I doubt it. I think it might produce a greater demand for military compounds on the part of those countries seeing that every possible potential aggressors were laying in greater stocks than they were.

3157. *Dame Rachel Crowdy:* It is a case of Japan getting too much and China must have more?

Sir Harry McGowan: Yes.

3158. *Dame Rachel Crowdy:* It was brought out yesterday that the plant and raw materials of your enterprise would be immediately available in the event of war.

Sir Harry McGowan: Yes.

3159. *Dame Rachel Crowdy:* If that is the case, can the loss of something which is well under 2 per cent. of your trade, the military side, be quite as important as is implied to the country, if 98 per cent. of your whole output is available for expansion in war-time.

* See Appendix 2, p. 506.

(The witnesses withdrew.)

Mr. H. A. REINEKE, chairman and managing-director, and Mr. D. M. CAMERON, secretary, Messrs. WILLIAM BEARDMORE & Co., Ltd., called and examined.

3166. *Chairman:* Are you representing Messrs. William Beardmore & Co., Ltd.?

Mr. Reineke: That is so.

3167. *Chairman:* What is your name, please?

Mr. Reineke: Reineke.

3168. *Chairman:* Are you chairman of the voting control committee of William Beardmore & Co., Ltd., and chairman and managing director of the company since 1930?

Mr. Reineke: That is right.

3169. *Chairman:* I understand that you are yourself the British-born son of a naturalised British father of German origin and of a British-born mother, and that two of your brothers served as officers in the British Army during the War?

Mr. Reineke: That is quite true.

3170. *Chairman:* You have submitted a detailed statement in answer to our questionnaire, and our questionnaire was in this case, the same as was addressed to Messrs. Vickers and to the L.C.I.† If it is convenient to you I would wish that your statement should be read.

† See Minutes of Evidence, 15th Day, Appendix 2.

Sir Harry McGowan: I think I made our position clear when I said that the question of the profit we make on our present production of war-like supplies does not give us any concern at all. It is a question of keeping the personnel trained in our factories equipped to take care of an emergency when it does come.

3160. *Dame Rachel Crowdy:* The point you made yesterday was that your ordinary commercial plant, your chemicals being what they are—your ordinary commercial power and your ordinary commercial raw materials were very easily and would be very easily, in as efficient an organisation as yours, convertible to war use.

Sir Harry McGowan: To a very large extent. 3161. *Dame Rachel Crowdy:* Is the under 2 per cent. quite as important to the country as you think it is, if the other 98 per cent. can be easily converted?

Mr. Rogers: May I deal with that aspect of it? Let us assume—as it is the fact—that we employ in the manufacture of explosives and munitions (say) a number of people, a figure of the order of 700. In a very short time that would be diluted to perhaps 7,000, going right through. It is therein that the importance of keeping military business in being exists.

3162. *Dame Rachel Crowdy:* Specifically trained man power?

Mr. Rogers: Yes—a nucleus from which to dilute. If we had no business of that kind the multiplication of 0 by 7,000 would not mean anything.

3163. *Chairman:* In order to avoid any misunderstanding about this publication of orders, I can quite understand the objection to the publication of orders or licences so long as one country is acting unilaterally, but assuming the time comes (which one trusts it may) when there is an agreement about limitation of armaments,—directly that is agreed, then publication of orders becomes very important and very necessary?

Sir Harry McGowan: I agree.

3164. *Chairman:* As a check?

Sir Harry McGowan: I agree.

3165. *Chairman:* That is all. We are much obliged to you. I would like to say that I think you have given us all the information that we can reasonably require, and have given it in full.

Sir Harry McGowan: Thank you so much, and thank you for your courtesy.

The following letter and enclosure were read:—

William Beardmore & Co., Limited.

Parkhead Steel Works, Glasgow.

London Office,

36, Victoria Street, S.W.1.

26th September, 1935.

Edward Twentyman, Esq.,

8, Buckingham Gate,

London, S.W.1.

SIR,

Referring to the letter which you addressed to me on the 24th April, I now have pleasure in sending you the information required in reply to your nine questions.

You will remember that when I called upon you on the 16th July I explained to you that certain establishments belonging to the Company have been closed down during the last five years, which, prior to their closing, were engaged upon the manufacture of "Arms and Munitions of War."

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[Continued.]

I was referring, as I explained, to the Shipyard and Marine Engineering Works at Dalmuir, where warships had previously been built.

The shipyard having been sold, and the building of marine engines having been abandoned, I have felt that to include figures relating to Dalmuir in those which are being supplied in reply to your questionnaire would not help the Royal Commission in arriving at its conclusions, but would, indeed, obscure the picture with regard to the Parkhead Steel Works, that being the only establishment belonging to the Company which would come into question in the event of the establishment of a State monopoly.

If, nevertheless, the Royal Commission should desire to have particulars concerning the Dalmuir establishments, I shall be glad to know their wishes and to meet them to the best of my ability.

The particulars now furnished in reply to your questions apply only to the Parkhead Steel Works. The answers to Questions 1 and 2 are set out in enclosure No. 1.

The estimated replacement value of plant which would be rendered redundant in the event of the establishment of a State monopoly is as follows:—

Plant employed only on armament work	1,120,000
Plant necessitated by armament work but also employed on commercial work... ..	1,150,000
Totally redundant	2,270,000

Enclosure No. 2 contains the information required in reply to Question No. 4. The published results, of course, include Dalmuir and other figures, but the proportion attributable to armament work at Parkhead is shown separately.

Enclosure No. 3 contains the reply to Question No. 5, regarding the number of men employed on armament work.

Question No. 6 will be dealt with at a later stage in this letter.

Enclosure No. 4* sets out the various agreements and arrangements between the Company and other companies engaged upon armament work.

In reply to Question No. 8, I enclose (Enclosure No. 5*) a list of the Company's holdings in other companies.

Short of sending you a copy of the register of shareholders, which I shall, of course, be glad to make available to you should you so desire, I find it difficult to answer your further question regarding holdings of the Company's capital by other firms.

No armament firm has any holding enabling it or entitling it to exercise any influence on the Company's policy, or to exercise any rights beyond those of any other shareholder. You will, no doubt, tell me so if in thus answering your question I have not correctly interpreted it.

In answer to Question No. 9, you will have gathered from my answer to Question No. 2 that H.M. Government is practically our only customer for armaments. In these circumstances, we have no special organisation for advertising these products or for soliciting orders in other quarters, although, of course, our ordinary trade advertisements contain references to the fact that armour, ordnance, etc., are manufactured at Parkhead.

As will be gathered from these answers to your questions, a considerable amount of work has been involved in preparing the information required. The questions have not presented a real difficulty excepting in the case of Question No. 6, in which you ask: "What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war?"

[Passage in reply to Question 6 not printed.]

* Not printed.

In conclusion, I should mention that the subsidiary companies of William Beardmore & Company are enumerated in the answer to Question No. 8. Not one of these companies is an armaments firm in any sense of the word, although one or the other amongst them may execute occasional orders for material used in the manufacture of munitions or in warship construction.

The only instance of this, of which I have definite knowledge, is afforded by the firm of John Broadfoot & Co., Limited, who supply brass castings to shipbuilders, including warship builders. I have assumed that for the purpose of your inquiries you would wish companies to be ignored which are only so remotely and intermittently engaged upon munitions work of an indirect nature.

With reference to the two concluding paragraphs of your letter, I will gladly furnish you to the best of my ability with replies to any further questions which the Royal Commission may wish to address to me.

I am, Sir,

Your obedient Servant,

(Sgd.) H. A. REINCKE,
Chairman.

Enclosure No. 1.

Total turnover for each of the five years ended 31st December, 1934, showing proportion attributable to production of munitions of war:—

Year.	Total turnover		Proportion attributable to munitions.	
	£	Per cent.	£	Per cent.
1930	643,167	100	112,047	17
1931	417,567	100	131,985	32
1932	265,853	100	89,366	34
1933	442,198	100	280,954	64
1934	542,646	100	216,490	40

Proportion of turnover in each of the five years ended 31st December, 1934, attributable to:

- (a) United Kingdom:
- (b) British Empire: and
- (c) Foreign, orders:—

Year.	United Kingdom.		British Empire.	
	£	Per cent.	£	Per cent.
1930	102,642	16	6,890	1
1931	131,985	32	Nil	—
1932	85,166	32	Nil	—
1933	280,954	64	Nil	—
1934	216,340	40	Nil	—

Year.	Foreign.		Total.	
	£	Per cent.	£	Per cent.
1930	12,515	—	112,047	17
1931	Nil	—	131,985	32
1932	14,200	2	89,366	34
1933	Nil	—	280,954	64
1934	150	—	216,490	40

† Material for Boiler Equipment.

Enclosure No. 2.

Declared results for whole Company after providing for interest on Loans and Dehenture Stock, losses in Departments closed down, etc., but with no provision for depreciation (all as per published accounts of the Company, prints of which for each of the five years to 31st December, 1934, are attached*):—

1930	...	...	Loss £250,054
1931	...	...	Loss £159,508
1932	...	...	Loss £177,501
1933	...	...	Loss £164,024
1934	...	...	Loss £64,810

Estimate of the proportion of the above results attributable to the production of arms and munitions

* Not printed.

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MESSRS. WILLIAM BEARDMORE AND CO., LTD.

[Continued.]

of war, being the proportion of trading results of Parkhead Steel Works excluding any of the following items:

1. Interest on Loans and Debenture Stock;
2. Losses on Departments closed down;
3. Losses on Subsidiary Companies;
4. Income received from Property and Investments;

but with no provision for depreciation of buildings and plant:—

1930	...	...	...	Loss	£12,447
1931	...	...	...	Loss	£ 5,894
1932	...	...	...	Loss	£14,327
1933	...	...	...	Profit	£47,904
1934	...	...	...	Profit	£52,383

3171. *Chairman:* You state that your only customer is the government.

Mr. Reincke: For armaments.

3172. *Chairman:* You do make other materials?

Mr. Reincke: Yes.

3173. *Chairman:* That accounts for the last answer, in which you state, for instance, in the last year you had 1,206 employees, 592 engaged on armament work. On what kind of work were the rest of the people engaged?

Mr. Reincke: Heavy forgings, castings, railway material and so on—all steelwork.

3174. *Chairman:* You have dealt with your agreements in the same way as the other firms have dealt with theirs, and you have put them into a schedule which you ask may be treated as confidential.

Mr. Reincke: That is so.

3175. *Chairman:* With one exception all the agreements that you refer to in that schedule are agreements made with British firms under this rationalising system; is not that so?

Mr. Reincke: That is so.

3176. *Chairman:* They have all been mentioned. I do not know whether you have seen Vickers' evidence?

Mr. Reincke: Yes.

3177. *Chairman:* I mentioned them in the questions I put to Sir Herbert Lawrence. These are the same agreements, are they?

Mr. Reincke: Exactly.

3178. *Chairman:* There are only two additions about which I want to ask a question. One of these rationalising agreements appears to have a foreign branch; it is under the Forgemasters' Convention, which is one of the British rationalising agreements. You say there is a continental group. The English branch of the Convention is described as follows:—

"Limits imports of forgings over two tons in weight to agreed quotas for shipbuilding and general requirements; also limits exports of similar forgings to neutral continental countries in an agreed quota. Excludes all forgings for British Admiralty work."

Do these particulars cover the continental branch as well as the English branch?

Mr. Reincke: Yes.

3179. *Chairman:* It is merely that a certain number of foreign firms have come into this Forgemasters' Convention?

Mr. Reincke: For the purpose of regulating matters pertaining to the foreign forgemasters as well as to ourselves.

3180. *Chairman:* It has the same object; it is for regulating prices?

Mr. Reincke: Yes, for quoting.

3181. *Chairman:* And really for eliminating competitive tendering, to a certain extent?

Mr. Reincke: It assists in making the protective system effective.

3182. *Chairman:* We have already been told, I think, that the three English firms, the English Steel Corporation, and Firths and Brown's, and Beardmore's, are now all in agreement with regard to the manufacture of armour plate.

Enclosure No. 3.

Average number of employees at Parkhead Steel Works for each of the five years ended 31st December, 1934, and estimated proportion employed on production of munitions of war:—

Year.	Total number of employees	Number engaged on munitions of war
1930	1,081	433
1931	1,018	434
1932	792	314
1933	1,034	495
1934	1,206	592

Mr. Reincke: Yes.

3183. *Chairman:* There is no competitive tendering about that any longer. Are you prepared to allow the government the fullest possible opportunity of checking the prices?

Mr. Reincke: Absolutely. And they take advantage of it too; they do it constantly.

3184. *Chairman:* What in fact do they do? Have you a system of costings?

Mr. Reincke: Yes.

3185. *Chairman:* And they come and examine them, do they?

Mr. Reincke: Yes.

3186. *Chairman:* By skilled accountants?

Mr. Reincke: Yes.

3187. *Chairman:* And you put no obstacle in their way in checking?

Mr. Reincke: Absolutely none.

3188. *Chairman:* The prices are agreed after their representative has come and checked your figures?

Mr. Reincke: Yes.

3189. *Sir Kenneth Lee:* Is there an agreed amount for overheads to start with in the price arrangement?

Mr. Reincke: That is awfully difficult to answer, because in so far as the price has to be agreed, of course the constituent parts of the price are agreed.

3190. *Sir Kenneth Lee:* Yes, but does each of the three manufacturers get the same basis?

Mr. Reincke: The answer is yes, definitely.

3191. *Sir Kenneth Lee:* Is that a percentage on the total cost?

Mr. Cameron: There is no agreed figure for the percentage of on-cost. It is made up. It may be agreed by them.

3192. *Sir Kenneth Lee:* So you are not sure that they allow you the same as the English Steel Corporation?

Mr. Reincke: We cannot answer as to what may be the composition of the final price with regard to the other firms. The Admiralty have access to the details of other firms which we have not.

3193. *Sir Kenneth Lee:* I understand there is no competition?

Mr. Reincke: There is no competition.

3194. *Sir Kenneth Lee:* The prices are all the same?

Mr. Reincke: Yes.

3195. *Sir Kenneth Lee:* And they examine the cost?

Mr. Reincke: Yes.

3196. *Sir Kenneth Lee:* I am not quite clear how this is arrived at.

Mr. Reincke: I am not an expert accountant. All I know is that expert accountants from the Admiralty come down and spend days on our books and the result is that the make-up of the price is formulated by the Admiralty, and when they have that the Admiralty fix the price in consultation with us.

3197. *Sir Kenneth Lee:* You get the order and the price is fixed later; is that it?

Mr. Reincke: Very often that is the case in practice.

3198. *Sir Kenneth Lee:* The price is settled after inspection of the books?

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[Continued.]

Mr. Reincke: It may be so. The Admiralty may be content for a price to be put in with their knowledge, but the Admiralty absolutely have the right, and they exercise it, to come and examine our books when they want to do so.

3199. *Chairman:* May I ask a question about that? I do not quite understand it. Supposing the Admiralty want something that you manufacture, and that is also manufactured by the other two firms who are concerned in this particular business, do they ask each one of you for a price before they begin?

Mr. Reincke: They may.

3200. *Chairman:* How is it started?

Mr. Reincke: It depends on the circumstances and what it is.

3201. *Chairman:* Did Woolwich make this particular class of armament work that you have undertaken?

Mr. Reincke: Some of it. They do not make armour plate.

3202. *Chairman:* Do you ever come into competition with Woolwich?

Mr. Reincke: I should say yes.

3203. *Chairman:* We have been told that the way in which the director of contracts deals with Woolwich and the private firms is this. He may have a certain amount of work to distribute, he distributes some to Woolwich to keep them going, and some to private firms to keep them going, and then there is a margin which he puts up to competition. Have you ever been in competition with Woolwich for an order?

Mr. Reincke: In this sense: if our prices are too high, compared with the prices at which Woolwich make a particular thing, presumably we would not get the order.

3204. *Chairman:* But have there been any cases in which you have been tendering against Woolwich and you have obtained orders because your price was lower than that of Woolwich?

Mr. Reincke: Not that I know. I would not know if that circumstance arose, I think.

3205. *Chairman:* You would not know whether you were in fact in competition with Woolwich?

Mr. Reincke: No. I might well be in competition without knowing it.

3206. *Sir Philip Gibbs:* Has the government any effective control over the prices? Although they see your costings and so on, have they not to accept the price based on those costings because they have no control at all over the cost of the material?

Mr. Reincke: Of course, if they cannot control the price of the material they cannot control the price; nor can we. We would put the price of the material at what it was.

3207. *Sir Philip Gibbs:* Therefore, the government is actually in the hands of what might be called the steel ring?

Mr. Reincke: Oh, no. I have not said anything which implies that.

3208. *Sir Philip Gibbs:* I do not see how the government could act. Supposing, for instance, they thought these things were getting rather expensive, I do not see how they could avoid that expense.

Chairman: They could buy from abroad, I suppose?

Mr. Reincke: I cannot see the government buying armaments abroad.

3209. *Chairman:* No, but Sir Philip was speaking about the components of armaments, the raw materials.

(The witnesses withdrew.)

Mr. Reincke: We cannot control the price of raw materials any more than the government can.

3210. *Sir Philip Gibbs:* Therefore, the actual fact is that although they know all about the costings and so on and the overhead charges, they cannot lower prices.

Mr. Reincke: The point is, they control the price which we can charge them.

Sir Philip Gibbs: Not as far as material enters into it.

3211. *Chairman:* Both you and the government start with the price at which you can get the raw material?

Mr. Reincke: Yes.

3212. *Chairman:* And then they correlate the price which you are charging for your work and your raw materials.

Mr. Reincke: My difficulty in answering you, Sir Philip, is this—that the answer is so obvious that I must imagine there is something at the back of your mind that I have not seen.

Sir Philip Gibbs: There is nothing sinister at the back of my mind.

3213. *Professor Gutteridge:* I think your company is controlled by the Law Debenture Corporation, is it not?

Mr. Reincke: No, the Law Debenture Corporation are the trustees for the debenture holders.

3214. *Professor Gutteridge:* It has been suggested—I do not know why it should be—that there is something sinister in that. Perhaps you would explain how it came about?

Mr. Reincke: There is always something sinister about armaments firms.

3215. *Professor Gutteridge:* Perhaps you would explain how this particular incident arose?

Mr. Reincke: Why is it sinister?

3216. *Professor Gutteridge:* I am not saying it is sinister. I am saying that some people seem to think it is. That is why I was asking you whether you would explain it.

Mr. Reincke: The company was practically bankrupt in 1928 and on the reconstruction new money was made available to the company on certain conditions, and the properties of the company were mortgaged, of course, to the debenture holders, and the Law Debenture Corporation were appointed as trustees. That is all.

3217. *Professor Gutteridge:* Would you be prepared to give us any particulars confidentially?

Mr. Reincke: About the trust deeds, certainly.

3218. *Professor Gutteridge:* Perhaps you would not be prepared to give them in public?

Mr. Reincke: I have not the document here.

Mr. Cameron: The trust deeds are available to the public.

3219. *Professor Gutteridge:* They can be seen at Somerset House?

Mr. Cameron: Yes.

3220. *Professor Gutteridge:* There is no mystery about it at all?

Mr. Reincke: No mystery at all.

3221. *Professor Gutteridge:* Then I may take it that when one sees these pictures of armament manufacturers creeping about with moneybags in their hands, it does not apply to you!

Mr. Reincke: I should be very pleased to have the photographer there when I had the moneybags.

3222. *Professor Gutteridge:* You have been carrying on business at a very heavy loss for some years?

Mr. Reincke: Yes.

Chairman: We are very much obliged to you.

Major A. B. H. CLERKE, C.B.E., managing director, Messrs. Hadfields, Limited, called and examined.

3223. *Chairman:* I think, Major Clerke, you are here representing Messrs. Hadfields, Ltd.?

Major Clerke: I am, Sir.

3224. *Chairman:* It is usual to give some information with reference to the position of the person who

represents the company. I have here particulars concerning yourself. You are a C.B.E., late R.F.A. You were educated at the Royal Military Academy, Woolwich. You were assistant inspector of steel, 1899; instructor, Ordnance College, 1904; chief

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[Continued.]

instructor, 1906; commanded 19th Battery, R.F.A., India, 1907; inspector, Royal Arsenal, 1908. That would be Woolwich, would it not?

Major Clerke: Yes.

3225. *Chairman:* Retired 1911, and director, Messrs. Hadfields, 1913. On the formation of the Ministry of Munitions in 1915, at which time you were director in charge of munitions work at Messrs. Hadfields, you returned to Woolwich as a volunteer for a month to organise the department of munitions inspection. At the end of that time you established them in headquarters at Sheffield, where you were able to supervise them generally until they were firmly established. You provided them with a model inspection bond in your works, which also served as a training school for examiners. That is an instance of where a private firm assisted the Ministry of Munitions. That is an example?

Major Clerke: That was the idea.

3226. *Chairman:* You have followed the same course as the other firms have done, you have answered our questionnaire and you have inserted a private schedule which includes your answer to Question 6, and also makes the same claim with regard to certain documents. I had better deal with the documents straightaway before we read the answers. They are in substance, are they not, a list of the agreements which have been entered into by British firms under this rationalising agreement?

Major Clerke: Yes, Sir.

3227. *Chairman:* The Forgemasters Convention. There is a continental group. I asked the last witness about that. With that exception they are all agreements, are they not, between British firms? I think I am right in saying that?

Major Clerke: Yes, I think it is right. There is the Nickel Syndicate.

3228. *Chairman:* We know all about that. With that exception they are merely these rationalising agreements between British firms?

Major Clerke: Yes, broadly. Some were in existence before that. They are all on the same lines.

3229. *Chairman:* With regard to your statement, would you like to read it yourself or have it read for you?

Major Clerke: May I trespass on the kindness of the secretary?

The following letter was read:—

East Hecla Works,
Sheffield.

16th October, 1935.

Edward Twentyman, Esq.,
Secretary, Royal Commission on the
Private Manufacture of and
Trading in Arms,

8, Buckingham Gate, London, S.W.1.

DEAR SIR,

1. In furnishing the information called for by your letter of 24th April, it may be appropriate to begin by setting out briefly the history of this Company, more particularly in relation to the manufacture and supply of arms and munitions of war.

2. Hadfields, Ltd., was originally founded in 1869 by Mr. Robert Hadfield under the title of Hadfields Steel Foundry. Mr. Hadfield died in 1888 at which time the concern was in process of conversion into a limited liability Company and was registered as such in 1888 under the title of Hadfields Steel Foundry Company, Ltd. The title was changed to Hadfields, Ltd., in 1913.

3. Their interest in the subject matter of your letter may be said to have commenced in 1880 when the "Committee on Plates and Projectiles" were

engaged upon a series of experiments in the attack of the newly invented steel-faced armour against which the chilled iron Palliser shot previously in use were proving ineffective.

4. At that time the firm was engaged upon the manufacture of steel castings generally, and Mr. Hadfield conceived the idea of utilising for the above-mentioned purpose a shell made of a special cast steel. In due course he was offered a practical trial and although these first samples did not solve the immediate problem, they formed the beginning of an association which has continued ever since.

5. The era was one of new ideas and development of artillery material, and the use of cast steel for projectiles of all types offered to his progressive enterprise a welcome scope for research and experiment. As a result, satisfactory types of cast steel shell were evolved for general use in British Naval and Coast Defence Services and were manufactured and supplied by the firm in regular and increasing quantities.

6. In the meantime constant research and experiment were proceeding on the major problem of the armour-piercing shell which remains to-day one of the most exacting and difficult metallurgical feats, and it was not until 1888 that the knowledge and experience gained were such as to enable a contract for the supply of 1,200 6-in. armour-piercing shell to be undertaken by the Company. These shell met the difficult requirements of proof, and from that time onwards progress was continuous.

7. During the next twenty years, by the same process of research and experiment, they built up a technical organisation which placed them in a predominant position in this specialised line of work, as evidenced by the fact that for seven years prior to the War they supplied about 50 per cent. of the total Government requirements of this nature. The value of this organisation to the country during the War may be estimated from the record of our war productions which is given in our reply to Question 6 of your letter.

8. During this time they manufactured other types of shell with a view to finding continuous employment of their ordnance department which represented about 18 per cent. of their total trade, the balance being purely commercial products, and in 1904 they introduced a type of cast steel armour which was adopted by the Admiralty for various structures in their current warship designs.

9. Their predominant interest in munition work, however, has always been the manufacture of armour-piercing shell, a subject demanding the highest degree of metallurgical skill and technique, and in which they have been able to introduce from time to time important improvements to which can fairly be attributed the present high standard of efficiency in this respect which the British Service can now command.

10. The detailed information for which you ask is set out herein, or in some cases in schedules attached hereto, against the various items in question. It will be appreciated that these records include matter of a highly confidential nature, and we must ask that the information given in our replies in respect of items 7 and 8 shall not be published. We submit further that it would not be in the public interest to publish certain portions of the other information given.

11. The subsidiary Companies under our control are included in Schedule "B" attached hereto. As none of these has produced any arms or munitions of war during the period under review, there are no figures to submit in respect of them.

12. To facilitate reference, we set out hereafter each item of your enquiry with the information desired appended thereto.

* Not printed.

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[Continued.]

Item 1.—The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.

The proportion required is given below as a percentage, computed upon invoiced values during the periods in question.

Year.	Per cent.
1930	12.70
1931	17.76
1932	19.59
1933	17.46
1934	17.65

Item 2.—The proportion of the turnover in each of the last five years representing arms and munitions of war attributable to (a) United Kingdom, (b) British Empire, and (c) foreign, Orders.

The proportions, computed as before, are as follows:—

	1930.	1931.	1932.	1933.	1934.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
United Kingdom	70.49	87.63	100.00	99.82	99.57
British Empire	2.85	.16	—	.18	.35
Foreign	26.66	12.21	—	—	.08
	100.00	100.00	100.00	100.00	100.00

The foreign orders shown in the years 1930 and 1931 are exclusively comprised of 14-in. armour piercing shell supplied to the Imperial Japanese Navy under a contract dating from 1924.

Item 3.—The estimated value of plant employed in the production of arms and munitions of war that would be rendered redundant in the event of the establishment of a State monopoly.

For this purpose we have taken the present day replacement value of our capital assets employed upon the production of arms and munitions of war and the proportion of that so employed in common with other production, these proportions being computed upon the basis of the respective annual output tonnages of the two classes of work during the five years under consideration.

On this basis the value is £850,000, the details of which are as follows:—

	£
Land	50,000
Buildings	224,500
Fixed Plant and Machinery	507,500
Movable Plant	35,000
Loose Plant, Tools and Equipment	30,000
Offices	3,000
	£850,000

Item 4.—The amount of declared profits of each of the last five years; an estimate of the proportion thereof attributable to the production of arms. (To be accompanied by published accounts for the five years.)

This computation is complicated by the fact that the period 1930 to 1934 represented an abnormal cycle of trade depression during which the Company was unable to provide for any depreciation in their accounts, the omission to do so having been subsequently rectified in a Scheme of Reorganisation which included a writing down of assets by £1,020,810, of which £972,624 was attributable to buildings, plant and machinery.

For this reason, in preparing an estimate of the proportion of profit attributable to the production of arms and munitions of war, it has been considered equitable to charge a sum equivalent to 2½ per cent. per annum upon the value of our buildings and 7½ per cent. per annum upon the value of our plant and machinery against our total productive cost, allocating a due proportion against that of arms and munitions of war.

The values of plant and buildings referred to are, of course, book values, as distinct from replacement values as given in answer to item 3.

We have also eliminated all charges for debenture interest, provision for income tax, and income from investments. On this basis the profit or loss attributable to the manufacture of arms and munitions of war has been estimated in consultation with our Auditors and is given as follows for the five years in question, in a form which admits of their reconciliation with our published accounts, copies of which are enclosed as requested.*

—	Profit or Loss per Published Accounts.	Adjustments referred to above.	Resulting Profit or Loss.		
			Total.	Arms and Munitions of War.	Commercial.
	£	£	£	£	£
1930	16,593	92,108	108,701	10,330	98,371
1931	36,206	83,117	119,323	10,344	108,979
1932	21,623	107,239	128,862	1,667	127,195
1933	32,180	82,392	50,212	18,639	68,851
1934	93,996	111,093	17,097	30,471	47,568

Item 5.—The average number of employees engaged in each of the last five years on the production of arms and munitions of war and other products, respectively.

The information desired has been extracted from our contemporaneous records as follows:—

Year.	Number of Employees.		
	Armaments.	Commercial.	Total.
1930	564	3,898	4,462
1931	582	3,441	4,023
1932	501	3,187	3,688
1933	567	2,994	3,561
1934	616	3,436	4,052

Item 6.—The firm's capacity for expansion for purposes of the production of arms and munitions of war (a) with, (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war.

[Reply not printed.]

Item 7.—Particulars of any agreements with other firms engaged in the production of arms, stating the names of the parties (British and foreign) to such agreements.

A list of the agreements desired, with particulars as regards objects and membership is appended hereto and marked Schedule "A".*

* Not printed.

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[Continued.]

Item 8.—Details of the firm's present holdings of the capital of other firms (giving names British and foreign), and of the holdings of the firm's capital by other firms (giving names British and foreign).

The details desired are given in three Schedules* attached hereto and headed as follows:—

Schedule "B".—Particulars of the holdings of the capital of other firms by Hadfields, Ltd., as at 30th June, 1935.

Schedule "C".—Details of the holdings of Ordinary and Preference share capital of Hadfields, Ltd., by other firms as at 30th June, 1935.

Schedule "D".—Details of the holdings of Hadfields, Ltd., Debenture stock by other firms as at 30th June, 1935.

Schedule "B" has been sub-divided into three sections, showing (1) subsidiary companies, (2) trading investments, and (3) holdings taken in satisfaction of indebtedness.

In Schedules "C" and "D" we have included all those holdings which stand in the names of nominees in order to ensure that all holdings by other firms have been included, but, with the exception of the holding of Debenture stock by Birch Lane nominees (which represents our own purchases of our Debenture stock in the open market), we have no knowledge of the real holders of any stock or shares held by nominees and, so far as we are aware, beyond the qualification shares of our own Directors, no shares or stock are held for any other purpose than that of bona fide investment.

Item 9.—The practice of the firm in regard to the advertisement of, and soliciting of orders for, arms and munitions of war.

Our regular advertising of arms and munitions of war consists of a page in *Brassey's Naval and Shipping Annual*, and the issue of about 100 pocket diaries. This may be occasionally supplemented in special circumstances. It is not the practice of the firm to solicit orders of this nature, but we deal with enquiries as and when they are received.

Trusting that this information will meet your requirements,

I am,

Yours faithfully,

(Sgd.) A. B. H. CLERKE,
Managing Director, Hadfields, Ltd.

3230. *Chairman*: In Schedule "B" you put under the first heading "Subsidiary Companies." Would you mind looking at that for a moment? All those subsidiary companies are English companies, are they not, with the exception of a French company—the last but two in your list—in which you hold 30 ordinary shares?

Major Clerke: Those are trading investments. 3231. *Chairman*: Yes, subsidiary companies and trading investments. They are all English companies, are they, with the exception of that French company?

Major Clerke: Yes, that is so. One of the subsidiary companies, the South African, is merely a sales agency. It is practically a department of our own.

3232. *Chairman*: What is the name?

Major Clerke: Hadfield's (South Africa) Proprietary.

3233. *Chairman*: Is that in South Africa?

Major Clerke: Yes, that is in South Africa. That was merely to conform to the local laws.

3234. *Chairman*: The other question that I want to ask is this. I do not want to go too deeply into it, but you have had experience both of private manufacture and of Woolwich have you not?

Major Clerke: I have been in Woolwich Arsenal, but I have not been in the ordnance

factories. I may say I have been an observer. Woolwich Arsenal buildings contain other departments than the ordnance buildings themselves. I was in the inspection department.

3235. *Chairman*: We have been told that it is possible to compare the cost at Woolwich with the cost of the private manufacture of munitions. Have you anything to say about that, or have you not sufficient experience of the method at Woolwich to be able to give us any information?

Major Clerke: Yes and no. It is 25 years since I was there, and no doubt things have altered a good bit since then. I think it is common ground that in the old days before the War the system of costings in Woolwich Arsenal was imperfect—shall we say—or if you like to put it, rather loose. I think there was a certain amount of adjustment of charges according to the nature of the work. I cannot say what the system is now, but I believe it has all been altered and put on a more scientific basis.

3236. *Professor Gutteridge*: Have the Admiralty a system by which they inspect the work which is in progress?

Major Clerke: Yes.

3237. *Professor Gutteridge*: They have a resident inspector?

Major Clerke: Oh, yes; very much so. We have a large Admiralty bond in our works, which is their territory.

3238. *Professor Gutteridge*: Did you call it a "bond"?

Major Clerke: Yes, like an excise bond.

3239. *Professor Gutteridge*: It is like a bonded warehouse?

Major Clerke: Yes, and it is their territory. They have their own staff of examiners there and it is shut off. They lock it up at night.

3240. *Professor Gutteridge*: Therefore, the Admiralty would know very well what you were doing?

Major Clerke: Oh, absolutely. They are walking around our shops all the time.

3241. *Professor Gutteridge*: They know what you are making for foreigners?

Major Clerke: Yes.

3242. *Professor Gutteridge*: There has been a suggestion with regard to the relief base shell, that you have been giving away some very important information to foreigners. Have you anything to say about that?

Major Clerke: I am afraid it is a myth.

3243. *Professor Gutteridge*: Is there any foundation for it?

Major Clerke: None at all.

3244. *Professor Gutteridge*: There is an advertisement in *Brassey's Naval Annual*.

Major Clerke: Yes.

3245. *Professor Gutteridge*: It says, *Hadfield's latest invention, the patented relief base shell, solves the problem of oblique attack on armour at modern battle ranges*.

Major Clerke: There is no secret about that. It is a patent, and anyone can read it.

3246. *Professor Gutteridge*: Your point is that it is public property already?

Major Clerke: Oh, yes, there is no secret about it.

3247. *Professor Gutteridge*: I take it the manufacture of a naval shell is a very different process from the manufacture of, say, a 4.5 howitzer shell?

Major Clerke: Yes.

3248. *Professor Gutteridge*: Is it much more elaborate?

Major Clerke: It is on a totally different plane from the manufacture of high explosive. The navy use those also but they are a simple and straightforward engineering proposition.

3249. *Professor Gutteridge*: Do you say this is not?

Major Clerke: The manufacture of armour piercing shell is a very highly scientific metallurgical operation. The mechanical side of it is

* Not printed.

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[Continued.]

unimportant. The real art of it is in the metal-lurgical and thermal treatment.

3250. *Professor Gutteridge*: Does that require specially skilled labour?

Major Clerke: Yes, and, particularly, specially skilled supervision.

3251. *Professor Gutteridge*: I take it you have that available at your works?

Major Clerke: Yes.

3252. *Sir Philip Gibbs*: When you say that the criticism about the armour piercing shell is a fallacy or a myth, do you base that on the point that it is a public patent?

Major Clerke: Professor Gutteridge asked if we were giving away any secrets. I say that is a myth. It is a patent.

3253. *Sir Philip Gibbs*: Ought not there to be secrets with regard to that?

Major Clerke: That is not for us to say.

3254. *Sir Philip Gibbs*: I was wondering what is your policy with regard to a new invention. I suppose you would admit that this new Hadfield armour piercing shell is of very great importance, would you not?

Major Clerke: We thought so.

3255. *Chairman*: Did you patent it?

Major Clerke: We have patented it.

3256. *Professor Gutteridge*: The government could have stopped your doing that had they wanted to?

Major Clerke: Yes, had they wanted to.

3257. *Chairman*: Directly it is patented it becomes public property in the sense that the information is available from the description of the patent?

Major Clerke: That is the essence of a patent.

3258. *Sir Philip Gibbs*: It would be impossible for any country to use that armour piercing shell unless they bought your patent?

Major Clerke: Legally, yes.

3259. *Sir Philip Gibbs*: They might crib it?

Major Clerke: Yes.

(The witness withdrew.)

Mr. ALLAN J. GRANT, J.P., managing-director, Messrs. Thomas Firth and John Brown, Limited, called and examined.

3268. *Chairman*: You are here representing Messrs. Thomas Firth and John Brown, Ltd.?

Mr. Grant: Yes, Sir.

3269. *Chairman*: I am told that you are managing-director of the merged concerns of Thomas Firth and John Brown, and that formerly you were managing-director of John Brown?

Mr. Grant: Yes.

3270. *Chairman*: Before that you were with Laird Bros.?

Mr. Grant: Yes, as a youngster.

3271. *Chairman*: In 1932 you were elected the president of the National Federation of Iron and Steel Manufacturers (now the British Iron and Steel Federation) and in that year you were leader of the British steel delegation to the Imperial Conference at Ottawa. You are also a member of the Board of Trade advisory council representing the steel industry. You are chairman of Firth-Vickers Stainless Steels, Limited, and the Firth-Brearley Stainless Steel Syndicate, a director of Cravens Railway Carriage & Wagon Co., Ltd., Nasmyth Wilson & Co., Ltd., and British Acheson Electrodes, Limited?

Mr. Grant: Yes.

3272. *Chairman*: You have done what the other companies have done, you have supplied us with a full detailed answer to our questionnaire. We generally have it read. Will you read it yourself, or would you like it read for you?

Mr. Grant: Would the secretary be good enough to read it?

3260. *Sir Philip Gibbs*: Actually you did sell that patent to certain countries?

Major Clerke: No.

3261. *Chairman*: You gave licences, did you not?

Major Clerke: No.

3262. *Sir Philip Gibbs*: A statement was made by a witness in previous evidence that you had sold it to something like eight foreign countries.

Major Clerke: No. He said it was patented in eight countries. We did not sell it.

3263. *Sir Philip Gibbs*: You have not sold any of this armour piercing shell to foreign countries?

Major Clerke: We have not delivered any shell —may I put it that way. We have not manufactured or delivered shell to that patent. You are pressing me on things that are semi-confidential. I am quite willing to tell you privately.

3264. *Sir Philip Gibbs*: May I ask you a specific question which, as a matter of fact, actually appears in your statement, about the Japanese navy and the 14-inch shells. Is not that one of the new armour piercing shells?

Major Clerke: No, it was before the date of the patent.

3265. *Sir Philip Gibbs*: Have you any agreement at all with foreign firms as to reciprocity in invention?

Major Clerke: We have one with our neighbours Messrs. Firth. That I have catalogued here.

3266. *Sir Philip Gibbs*: You have no arrangement with any foreign firm for providing them with any new invention?

Major Clerke: Not for anything in the nature of munitions.

3267. *Sir Philip Gibbs*: Or armour plate? You would not count armour plate as ammunition, would you?

Major Clerke: It depends, but we have not provided them with that either.

Chairman: We are much obliged to you for the information that you have given.

The following letter and enclosures were read or taken as read:—

Atlas & Norfolk Works,
Sheffield, 1.
2nd October, 1935.

SIR,

We have the honour to refer to your letter of the 24th April in which, for the purposes of the Inquiry now being held by the Royal Commission on the Private Manufacture of and Trading in Arms, you desire full information under various headings referring to this Company or to any Subsidiary Companies under its control. We also beg to refer you to our reply of the 29th April in which we expressed our willingness to disclose information of any kind which may be of advantage to the Royal Commission.

In enclosing the replies to the various questions, we think that it might be useful to the Commission to state briefly the previous history of the firm and its long connection with the supply of arms and armaments for the fighting forces of the Crown.

The present concern, Thos. Firth & John Brown Ltd., is the result of an amalgamation which took place on the 1st January, 1931, between the old established firms of Thos. Firth & Sons, Ltd. and the steel interests of John Brown & Company, Ltd. The business of Thos. Firth & Sons was established by Mr. Thomas Firth in the year 1842 in Sheffield and became famous at a very early date for the supply of high class special steels, including gun forgings and shell. The personnel has always been carefully chosen for its expert knowledge of the high class of steel required for these purposes, and over a long

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[Continued.]

period technical improvements have been made which have always kept the firm in the forefront of progress in these directions. The works of John Brown & Company in Sheffield were founded by Sir John Brown in 1838 and turned into a limited liability company in 1864, and in addition to being large suppliers of steel for commercial purposes they specialised at a very early date in the manufacture of armour plate and gun forgings, and have had a long and successful connection with the British Admiralty for the supply of armour plates for the vessels of His Majesty's Fleet.

During the period of depression to which the steel industry was subjected since the War, the demands on both steel works fell considerably, and in accordance with the reorganisation which has been in progress in the steel industry, it was considered advisable to amalgamate the two concerns, who had always been closely allied with regard to directors and shareholding interests, but who had hitherto been run as separate establishments from a technical and commercial point of view. This fusion took place, as mentioned above, in January, 1931.

Definite answers are given, in the particulars attached, to the questions asked, as far as is possible, but in view of the evidence which has already been tendered we think it might be of interest to state briefly the experiences of both concerns at the outbreak of hostilities in 1914.

To take the case of Thos. Firth & Sons, as it was at that time, it was obvious that the most useful direction in which they could collaborate in the national interest, would be primarily in the direction of shell manufacture, with which the firm has always been closely associated, their connection with it dating back to the days of the old round shot produced in dies from crucible steel.

Prior to August, 1914, Firth's had undertaken with success a number of contracts for high explosive shell, but there had been a gap of some three to four years immediately preceding the date mentioned when these shell had been absent from their programme due to the absence of orders. Immediately on the outbreak of war, Firth's drew the attention of the responsible officials of the War Office to the general lack of facilities for the rapid production of this class of shell, and to assist in remedying this serious situation they installed additional plant in their existing shops, and rapidly erected in their Tinsley Works several large shops both for forging and machining. These steps were necessary owing to the fact that their existing plant was filled to repletion with orders for naval shell. In addition, they put forward a scheme for utilising the machining resources of many firms usually engaged in the production of textile machinery or other lines for which the demand had practically ceased owing to the War. This scheme was accepted, and Firth's succeeded in enrolling the whole of the more important textile firms in Lancashire, together with a number of the outstanding firms in the Glasgow area, which latter group were, at a later date, handed over to the Ministry of Munitions at their request to form the nucleus of the organisation to be controlled by the Scottish National Board. The whole of the sub-contractors were originally entirely unfamiliar with this class of work, but by means of frequent round table conferences, demonstrations given to them in our works, regular visits from technical members of our staff, and the aid of detailed drawings for each and all of the operations, they were rapidly transformed into economical production units.

In 1915, Firth's were asked to undertake the responsibility of erecting a National Projectile Factory at Templeborough, which they were able to do with great rapidity by making use of their existing organisation, who were, of course, entirely familiar with the requirements of such a plant. The factory was built, fully equipped and staffed, and put into operation within little more than six months from the time the site was acquired.

A further constructive step taken by Firth's was to requisition the services of their Associated Company—The Washington Steel & Ordnance Company—in the manufacture of naval shell, so releasing home plant for army shell, a measure which in practice, worked extremely well.

In the circumstances described, and bearing in mind that for several years before the War Firth's had not supplied army shell, or held in reserve plant for that purpose, it was inevitable there should be some delay on the outbreak of war before they were able to supply shell of this type in large numbers, but notwithstanding this initial disability for which they were in no sense responsible, Firth's commenced to make large deliveries of army shell at the beginning of February, 1915, and continued to supply in ever increasing quantities during the whole course of the War.

In view of the arguments put forward in favour of the abolition of the private manufacture of armaments, it should be emphasised that there is technically a wide gulf between the manufacture of high explosive shell for land purposes, which can be considered to be an ordinary engineering product when properly organised, and the manufacture of armour-piercing shell for naval purposes. The latter involves very difficult technical questions affecting steel manufacture and heat-treatment and requires the services of a highly technical staff accustomed to dealing with questions of this nature. Realising these difficulties in manufacture the following points may be of interest in connection with armour-piercing shell.

In 1908 Firth's introduced the hollow cap, which may truthfully be said to have advanced the standard of A.P. Shell performance more than any other single factor in its long existence. In 1913, a further development occurred in the invention of an improved form of hollow cap which proved to be a most effective means of defeating armour under oblique attack. It should here be mentioned that this achievement, and subsequent improvements thereon, were not only due to work and research carried out in Firth's Works in Sheffield, but were contributed to by the appreciable experiments carried out in their works in Riga (Russia) and in the American Companies—Firth Sterling Steel and Washington Steel and Ordnance, in which they were interested at that period. The latter Company has now ceased to exist. The national importance of foreign contracts is worthy of emphasis for it has the virtue of keeping us in touch with the line of thought prevailing in other countries, gives definite knowledge of their activities, widens the field for experimental work under varying conditions, and enables the technique of our experts and highly trained workpeople to be maintained at a high level.

With regard to John Brown & Company, this firm had always specialised principally in naval work, and in addition, they were at the outbreak of war, part owners of the Coventry Ordnance Works, and their activities were then directed primarily to the supply of the necessary material to satisfy the wants in these connections. It will be remembered that there was an immediate expansion in the number of war vessels, particularly destroyers; and by placing their capacity at the service of the Admiralty they were, in a very brief period, able to increase the supply of forgings for propelling machinery for war vessels to such an extent that after a few months they were supplying a complete set of forgings for destroyers at the rate of one a fortnight. Half this output was sent to John Brown & Company's Shipyard at Clydebank and the other half was distributed among the various destroyer builders, such as Thornycroft, Yarrow, etc., in different parts of the country, as instructed by the Admiralty. This rate of output was maintained to the end of the War, and in addition, forgings were produced for battle cruisers, such as H.M.S. *Repulse* and H.M.S. *Furious* etc. Besides this, the Coventry Ordnance Works received large orders for howitzers, and in the very early stages of the War the forgings

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[Continued.]

necessary for the manufacture of the 15-inch howitzer were produced in record time, and thereafter a large number of 4.5-inch howitzer forgings and other gun forgings for the Army were produced on a very large scale. It was always considered, however, that the Admiralty had the first call on the Brown plant, and land service requirements such as the gun forgings mentioned above, and shell billets, were utilised to fill up the remainder of the firm's capacity. Commercial work, of course, entirely ceased, but production of the high class steels required for war purposes presented no particular difficulty to the highly skilled technical staff and workmen who had been engaged on this class of material, certainly in much smaller quantities, in the pre-war years, and was only limited by the possibility of plant extensions and the number of men available.

Since the War, the firm has remained at the disposal of the Admiralty, and by agreement with that department, has kept available the necessary special plant required for the manufacture of armour together with the technical experts essential for its production, so as to have sufficient capacity as laid down by the Admiralty, although the orders available have been only a very small proportion of the potential output. Should it be desired that private manufacture of arms is to cease, it would become necessary to dispense with expert staff and to dismantle the armour department, which is of no value for commercial purposes. It may be stated that the value of the plant and the area of the shops occupied amounts to a substantial proportion of the whole of the Atlas Works.

We desire to draw attention to one phase of the evidence which has already been given and which appears to be very widely held among the uninstructed public, namely, that active propaganda is indulged in by the armament firms for the fomenting of international disputes and the soliciting of orders abroad. We can only speak for our own firm, but we wish categorically to deny the truth of these statements, as it has never been the practice of this firm to solicit orders abroad for war material. The reputation of the concern, however, is almost world wide and naturally when enquiries have been received from foreign sources for material which was within our range of manufacture, we have quoted for its supply in the endeavour to bring work to this country, to increase employment in Sheffield, and to keep together the men necessary for its production. It will be seen from the figures given in the answers to the questions, that the amount of foreign armament material supplied has been very small, permission always having been granted by the appropriate British Government Department.

We desire to make the following observations with regard to the answers to Question No. 7 with reference to associations. It will be within the knowledge

of the Commission that the steel trade in this country has for many years been partially organised by means of trade associations among firms dealing with products of the industry of a like nature. These organisations have, with full Government approval, been recently much extended through the British Iron and Steel Federation under the chairmanship of Sir Andrew Duncan. Most of the associations have the same object, namely, to prevent as far as possible, suicidal internal competition by the establishment of a reasonable selling price, to avoid the wasteful multiplication of estimating work, and by the allocation of orders to ensure that, as far as possible, work is distributed fairly in different parts of the country so that one district, owing to a particular geographical advantage, may not prosper at the expense of another less favourably situated.

The arrangements entered between the firms producing arms material are of a precisely similar nature. They also, however, serve an additional purpose as a clearing house for technical information; so that wherever orders may be allocated they are executed with the benefit of the combined technical experience of the associated firms. As the customer in this case is usually a government department the selling price of the material, whether it be armour or shell, is subject to scrutiny from the accountant officers of the government department concerned, and the selling price is mutually arranged between the firms and the appropriate government department. It may be asked, if this is the practice, how losses are shown in many of the years' figures submitted in answer to Question 4; this can be accounted for by the fact that in those particular years the orders given were comparatively small and totally inadequate to cover the standing charges incidental to the maintenance of the highly technical staff necessary.

We beg to request that in fairness to our own shareholders, information given in reply to the questionnaire which discloses figures of investments, turnover and profits that might be of advantage to competitors, both at home and abroad, and other information which might be detrimental to the national interest, may be regarded as confidential.

We are, Sir,

Your obedient Servants,

THOS. FIRTH & JOHN BROWN, LIMITED.

(Sgd.) ABERCROMBAY,

Chairman.

Edward Twentyman, Esq.,

Royal Commission on the Private

Manufacture of and Trading in Arms,

8, Buckingham Gate,

London, S.W.1.

Question No. 1.

The proportion of the total turnover in each of the last five years attributable to the production of arms and munitions of war.

Answer.

The following Table shows the proportion of the total monetary value of the turnover attributable

to the production of arms and munitions of war, for the years 1930 to 1934, both inclusive, the first year of the period representing a combination of the turnover of John Brown & Co., Ltd., and Thos. Firth & Sons, Ltd., carrying on business in that year as separate entities, the four succeeding years representing the turnover of Thos. Firth & John Brown, Ltd., operating as a single concern.

Total Value of Deliveries.		Arms and Munitions of War.		Commercial Work.	
Year.	Amount.	Amount.	Percentage of Total.	Amount.	Percentage of Total.
	£	£		£	
1930	2,114,484	206,356	9.76	1,908,128	90.24
1931	1,470,685	120,638	8.20	1,350,047	91.80
1932	1,271,789	112,338	8.83	1,159,451	91.17
1933	1,745,989	238,176	13.64	1,507,813	86.36
1934	2,446,949	316,495	12.93	2,130,454	87.07

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[Continued.]

Question No. 2.

The proportion of the turnover in each of the last five years representing arms and munitions of war, attributable to (a) United Kingdom, (b) British Empire and (c) foreign, orders.

Answer.

The following Table supplies the answer to this question, and should be read in conjunction with the answer to Question No. 1.

Year.	United Kingdom.		British Empire other than United Kingdom.	Foreign.		Total.
	Amount.	Percentage of Total.		Amount.	Percentage of Total.	
	£			£		£
1930	115,213	55.83	—	91,143	44.17	206,356
1931	91,016	75.45	—	29,622	24.55	120,638
1932	101,156	90.05	—	11,182	9.95	112,338
1933	224,983	94.46	—	13,193	5.54	238,176
1934	311,120	98.30	—	5,375	1.70	316,495

Question No. 3.

The estimated value of plant employed in the production of arms and munitions of war, that would be rendered redundant in the event of the establishment of a State monopoly.

Answer.

It will be manifest that to prepare a statement in detail with the necessary supporting evidence of the cost of setting up on its own site a well equipped plant capable of taking the place of the Company's plant for the production of arms and munitions of war, would occupy considerable time, and we have

therefore assumed that the purpose of the Commission will be served if an approximate cost only is furnished, based on the opinion of the Company as to what might be required.

Subject to the foregoing explanation we submit in the two attached Schedules brief particulars of our estimate of the cost of providing plants for the production of (a) armour plate, and (b) armour piercing shell, torpedo components, ship shafting and allied products.

Schedule (A) amounts to £1,271,070; (B) £887,500, making a total of £2,158,570.

SCHEDULE A.

ARMOUR PLATE FORGING PRESS—ROLLING MILLS—TREATMENT AND MACHINING PLANTS.

Summary of Estimated Capital Value.

Description.	Forging Press.	Rolling Mills.	Treatment Furnaces.	Bending Press.	Machine and Erecting Shops.	Melting Furnaces.	Miscellaneous.	Total.
	£	£	£	£	£	£	£	£
Land, Plant and Buildings ...	15,000	20,000	27,000	10,000	85,000	15,000	—	172,000
Operative Plant ...	60,000	75,000	21,000	70,000	240,000	15,000	32,000	513,000
Hydraulic Pumps and Engines	40,000	65,000	—	—	—	—	—	127,000
Furnaces ...	14,000	24,500	43,500	25,000	24,500	—	—	131,500
Furnace Chimneys ...	4,000	—	—	—	5,900	—	—	9,900
Overhead Cranes ...	3,500	5,000	10,000	9,500	32,500	10,000	—	70,500
Oil Quenching Tanks and Oil Carburizing Furnaces ...	—	—	12,700	—	—	—	—	12,700
Douche—Pump and Tools ...	—	—	20,000	—	—	—	—	20,000
Boilers and Stacks ...	—	—	9,500	—	—	—	—	9,500
Services (Gas—Water—Hyd.)	—	—	18,000	—	—	—	40,000	58,000
Tackle and Tools ...	500	1,500	2,000	—	—	—	—	4,000
Floor ...	4,500	2,000	8,500	4,000	14,000	23,500	—	56,500
Railways ...	3,250	3,500	2,500	2,000	16,000	6,000	—	33,250
Heating Apparatus ...	3,500	—	—	—	5,000	—	—	8,500
Ground ...	—	—	—	—	5,000	—	—	5,000
	—	—	—	—	—	—	39,720	39,720
	148,250	196,500	174,700	120,500	427,900	91,500	111,720	1,271,070

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[Continued.]

SCHEDULE B.

FORGES, TREATING, MACHINING AND HARDENING PLANTS, WITH ALL EQUIPMENT FOR ARMOUR PIERCING SHELL, TORPEDO COMPONENTS, SHAFTING AND ALLIED PRODUCTS.

Summary of Estimated Capital Value.

Description.	Heavy Forging Press.	Light Forging Press.	Shell Punching Press.	Shell Annealers.	Machine Shops and Fitters.	Electric Furnaces.	Miscellaneous.	Total.
	£	£	£	£	£	£	£	£
Land, Plant and Buildings ...	9,000	8,000	8,000	—	37,900	30,000	—	92,900
Operative Plant ...	60,000	23,000	24,000	5,000	182,400	35,000	—	329,400
Hydraulic Pumps and Engines	—	—	—	—	5,500	—	—	5,500
Furnaces ...	11,000	5,000	3,200	8,000	—	—	—	27,200
Furnace Chimneys ...	5,000	3,000	3,500	2,000	—	28,000	—	41,500
Overhead Cranes ...	4,400	3,500	3,400	2,000	10,400	25,000	—	48,700
Moulds ...	—	—	—	—	—	12,000	—	12,000
Annealing Pits ...	2,500	1,500	—	2,000	—	6,000	—	12,000
Boiler Plant and Chimneys ...	7,500	2,500	1,000	—	—	—	—	11,000
Services (Gas-Water-Hyd. etc.)	5,000	2,000	4,000	1,000	10,000	3,000	—	25,000
Tackle and Tools ...	4,000	2,000	4,000	500	15,500	6,000	—	32,000
Floor ...	1,000	500	500	—	10,800	2,000	—	14,800
Railways ...	6,000	—	—	—	—	—	10,000	16,000
Bond, Gauge Room and Inspection ...	—	—	—	—	15,850	—	—	15,850
Copper Banding Presses ...	—	—	—	—	—	—	7,000	7,000
Monolising Plant ...	—	—	—	—	—	—	3,100	3,100
Heating of Shops ...	—	—	—	—	—	—	2,000	2,000
Shell Hardening Plant ...	—	—	—	—	—	—	60,000	60,000
Ground ...	—	—	—	—	—	2,300	14,100	16,400
Power Plant ...	—	—	—	—	—	—	112,150	112,150
Offices and Equipment ...	—	—	—	—	—	—	3,000	3,000
	115,400	51,000	51,600	20,500	288,350	149,300	211,350	887,500

Question No. 4.

The amount of declared profits of each of the last five years; and an estimate of the proportion thereof attributable to the productions of arms and munitions of war. (The above to be accompanied by published accounts for the five years.)

Answer.

The purpose of this question has been interpreted to ascertain what proportion of the profit or loss, of the total production of the Company, accrued from the manufacture and sale of arms and munitions of war.

If this interpretation is correct, it is considered that there must first be eliminated all income arising from investments which are in no way related to the production of armaments, and secondly, in order that the profits as a whole shall be shown without charge for interest on the permanent loan capital, there must be eliminated on the expenditure side, debenture and mortgage interest, and thirdly, in order that the figure between one year and another may be strictly comparable, there must be substituted for the provisions made in each year's accounts, if any, to cover depreciation, the amount which would have been charged had the revenue of each year been made to bear the proper and adequate allowance for depreciation calculated at uniform rates on reducing values. Subject to the foregoing explanation, the following are the answers to the questions asked:—

(1) Profit and loss of each of the last five years, per published balance sheets, as attached hereto,* viz.:—

	£
Year 1930. Profit ...	10,902
" 1931. Loss ...	44,670
" 1932. Loss ...	75,950
" 1933. Profit ...	12,519
" 1934. Profit ...	345,039

(2) Profit and loss of each of the last five years, per published balance sheets, after charging depreciation on the reducing values at the rate of

* Not printed.

2½ per cent. on buildings and 7½ per cent. on plant and machinery, and eliminating debenture and mortgage interest payable by the Company, and on the other side, income from investments belonging to the Company, viz.:—

	£
Year 1930. Loss ...	96,055
" 1931. Loss ...	95,301
" 1932. Loss ...	174,833
" 1933. Profit ...	10,085
" 1934. Profit ...	317,339

(3) Division of (2) between—

	Arms and Munitions of War.	Commercial.
	£	£
Year 1930 ...	Loss 8,806	Loss 87,249
" 1931 ...	Profit 2,692	Loss 95,993
" 1932 ...	Loss 27,043	Loss 147,840
" 1933 ...	Loss 3,522	Profit 13,607
" 1934 ...	Profit 46,315	Profit 271,024

The foregoing figures relate solely to Thos. Firth & Sons, Ltd., for the year 1930, and to Thos. Firth & John Brown, Ltd., for the subsequent years.

The corresponding figures to those shown in part 3 of the answer to Question No. 4, as regards John Brown & Co., Ltd., for the year 1930, are as follows:—

	Arms and Munitions of War.	Commercial.
Year 1930 ...	Loss £2,689	Loss £41,677

Question No. 5.

The average number of employees engaged in each of the last five years on the production of arms and munitions of war, and other products, respectively.

Answer.

The term "employees" has been interpreted to include every person in the service of the Company whatever position occupied, and the figures in the subjoined table for the year 1930, are a combina-

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tion of those appertaining to John Brown & Co., Ltd., and Thos. Firth & Sons, Ltd. It will be noticed that relatively to turnover the total number of people employed was less in 1934, than 1930, a circumstance which is explained in part by the greater turnover in the latter year, but in a still greater measure by the economy realized in the use of labour as a result of the amalgamation of the steel businesses of Thos. Firth & Sons, Ltd., and John Brown & Co., Ltd., at the beginning of 1931.

Year	Proportion of War. Munitions		Proportion of other Products		Total.
	Arms	Munitions	Arms	Munitions	
1930 ...	677	4,816	599	4,125	5,493
" 1931 ...	555	3,502	701	4,547	4,724
" 1932 ...	797	4,391			4,057
" 1933 ...					5,188
" 1934 ...					

Average number per week.

Question No. 6.

The firm's capacity for expansion for purposes of the production of arms and munitions of war (a) with, (b) without, the use of plant normally employed on other products. What would be the effect of a State monopoly on the firm's capacity for production of arms and munitions of war on the outbreak of war?

[Reply not printed.]

Question No. 7.

Particulars of any agreements with other firms engaged in the production of arms and munitions of war, stating the names of the parties, British and foreign, to such agreements.

[Reply not printed.]

Question No. 8.

Details of the firm's present holdings of the capital of other firms, giving names (British and foreign), and of the holdings of the firm's capital by other firms, giving names (British and foreign).

[Reply not printed.]

Question No. 9.

The practice of the firm in regard to the advertisement of, and the soliciting of orders for, arms and munitions of war.

Answer.

It is not the firm's practice to solicit orders or advertise for Arms and Munitions of War. We only respond to such enquiries as are sent to us, and which are made known to the Government of our own country.

3273. *Chairman*: The only question I want to ask has reference to your confidential annex. It is a fact, is it not, that with two exceptions the agreements to which you refer in your annex are all agreements which have been entered into with British firms under this rationalising arrangement?

Mr. Grant: Yes.

3274. *Chairman*: Of those two exceptions, one is the nickel agreement, of which we know, and the other is an agreement about which we have not heard—the Torpedo Air Vessel Forgings agreement?

Mr. Grant: Yes.

3275. *Chairman*: That is an agreement in which there are three English firms and two foreign firms concerned?

Mr. Grant: Yes.

3276. *Chairman*: And it is confined solely to air vessel forgings and ends "offered outside Great Britain, Sweden and Czecho-slovakia"?

Mr. Grant: Yes.

3277. *Chairman*: And in order to regulate the price concerned. With that exception, they are all British firms?

Mr. Grant: Yes.

3278. *Sir Kenneth Lee*: In your letter you attach great importance to the foreign business because of the information that it gives you?

Mr. Grant: Yes.

3279. *Sir Kenneth Lee*: Have you agents?

Mr. Grant: Yes, we have.

3280. *Sir Kenneth Lee*: And they will be active in soliciting orders?

Mr. Grant: Not armament orders. We have not anybody engaged in soliciting armament orders at all.

3281. *Sir Kenneth Lee*: How do they get the information which is valuable to keep you up to date?

Mr. Grant: I am afraid this paragraph of my letter is rather more historical than an indication of what actually happens at the present time. The agents that we have abroad, for instance, in Belgium and one or two other countries, are selling other products. What actually happens is this. We do not solicit orders, but if we receive an inquiry from abroad we respond to it. I assure you that most of the agents are not in any way connected with the armament side of the concern and they do not understand it.

3282. *Sir Kenneth Lee*: So that really the information is not very important?

Mr. Grant: No, it is not.

3283. *Sir Kenneth Lee*: Your foreign business has practically dropped to nothing?

Mr. Grant: As far as the armament business is concerned, as you see from the figures, it is practically nil.

3284. *Sir Kenneth Lee*: So you could give it up without loss?

Mr. Grant: As things are at the moment.

3285. *Sir Kenneth Lee*: Apart from the indirect value that you attach to it.

Mr. Grant: All these orders are of value, but it is a fact that foreign orders for armament material have not been an appreciable item in our figures for the last few years.

3286. *Sir Kenneth Lee*: The value of the information that you get from the point of view of keeping you up to date is negligible?

Mr. Grant: Yes, I should say that is so now.

3287. *Sir Philip Gibbs*: May I ask you why in 1930 the percentage of your foreign business in armaments was 44 per cent., which seems very high?

Mr. Grant: That was one order. It was for these torpedo air vessels and at that time the whole figure for armaments was pretty low, so that one specific order made a great difference to the percentage.

3288. *Sir Philip Gibbs*: Are you prepared to accept orders from any country according to whether you can get a British licence?

Mr. Grant: No. We should always take any orders from foreign countries with the permission of the appropriate government department which, as far as we are usually concerned, is the Admiralty.

3289. *Sir Philip Gibbs*: You put the responsibility entirely on the government?

Mr. Grant: Yes.

3290. *Professor Gutteridge*: I think your first experience was with John Brown, was it not?

Mr. Grant: Yes.

3291. *Professor Gutteridge*: Until when?

Mr. Grant: Until the amalgamation took place in 1931.

3292. *Professor Gutteridge*: They were not a shell making firm, were they?

Mr. Grant: No.

3293. *Professor Gutteridge*: So you cannot throw any light on what happened at Thomas Firth's in 1914?

Mr. Grant: No, not much. I know a certain amount about it.

3294. *Professor Gutteridge*: You are one of the people who have been pilloried for having promised to deliver a great many more shells than you were able to deliver?

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Messrs. THOMAS FIRTH AND JOHN BROWN, LTD.

[Continued.]

Mr. Grant: I have made inquiries into that and there is no trace of that alleged promise having been made. It was probably one of those meetings which took place at the time, when the heads of the different concerns were present and were asked what they could do, and were pressed to do a great deal more than they could possibly perform. There is no evidence, at any rate in our records, that any such promise was made as cited in this evidence. I know enough about the situation at that time to be able to remember very well that the requirements for the army were constantly growing week by week. The army authorities themselves had no idea as to the amount that would be required. It is impossible to evolve a shell out of nothing. You must have the plant and the men there to do it, and it was only by the organisation of the other ordinary engineering firms to which we have referred that we were able to make a very considerable contribution to shell manufacture in the early days of the War.

3295. Professor Gutteridge: And you take considerable credit to yourselves for that?

Mr. Grant: Yes, I think we may.

3296. Professor Gutteridge: That is your answer to the accusation?

Mr. Grant: Yes.

3297. Chairman: In your statement you say that you had works at Riga. Have you works abroad now?

Mr. Grant: No. We have an interest in a company called the Firth-Sterling Steel Company in America—it is given in the schedule—but that company is not engaged in armaments work at all.

3298. Chairman: I see you were with John Brown & Co., who were the owners of the Coventry Ordnance Works?

Mr. Grant: Yes.

3299. Chairman: I do not know the dates. Were you there?

Mr. Grant: Yes, I was.

3300. Chairman: Do you know anything about Mulliner?

Mr. Grant: Yes, Mulliner was there.

3301. Chairman: When you were there?

Mr. Grant: I was at Sheffield when Mulliner was at Coventry.

3302. Chairman: You were at Sheffield with John Brown when Mulliner was at Coventry?

Mr. Grant: Yes.

3303. Chairman: I suppose at first hand you do not know anything about anything that happened?

Mr. Grant: Only by hearsay. I think he did what any of us would do now. He happened to get information that rather more activity was going on in Germany than was generally known. He reported it, and I think very rightly.

3304. Chairman: You say "Since the War the firm has remained at the disposal of the Admiralty, and by agreement with that department has kept available the necessary special plant," and so on. Are you receiving any payment for that?

Mr. Grant: No.

3305. Chairman: Is it merely voluntary?

(The witness withdrew.)

(Adjourned for a short time.)

On resuming,—

Mr. GEOFFREY DUKE BURTON, managing-director, THE BIRMINGHAM SMALL ARMS COMPANY, LIMITED, called and examined.

3311. Chairman: We will take the evidence which has been given by the Birmingham Small Arms Company, and I think, Mr. Burton, that you represent them, do you?

Mr. Burton: Yes, Sir

Mr. Grant: Yes. If I might, I should like to explain a little of how the price of armour plate is arrived at. May I elaborate that?

3306. Chairman: Yes. We shall be only too grateful for any information that you can give us.

Mr. Grant: The procedure is this: Making armour plate is a difficult metallurgical operation and calls for certain constituent materials, such as nickel, pig iron and chromium, of which the trade price is world-wide. When the plate has been made and has gone through various complicated processes it is fired at. It has been stated that there was no competition between the three armour plate firms. I should like to say that as regards quality there is the very keenest competition. There is a firing trial at Shoeburyness. The armour plate has to stand up to a certain velocity and keep out a shell at a given angle. It is a very complicated and technical thing with a new type of plate and a new thickness. The plates from the three firms are fired at and a standard velocity is arrived at, which represents the mean figure of the three results. Then a provisional price is usually arranged over an accounting period of a year during which the quantity of armour plate that will be ordered is known. Naturally the price varies to a certain extent with the quantity. The greater the quantity, the less the percentage of overhead charges and the cheaper it is to make. At the end of that period the Admiralty accountants come down, they see the books of the three firms and they ascertain what it has actually cost to make. Those figures are again averaged. They come out as a rule very near. There may be a few pounds difference between the three firms, but not much more than that. So that the government department—in this case the Admiralty—are fully aware—as much as we—what it costs to make this armour plate. On that information being available, we have a conference with the director of contracts at the Admiralty and a suitable selling price is arranged on top of that, and I assure you that a very hard bargain is driven.

3307. Chairman: That means that the price is not fixed until some considerable time after the article is produced?

Mr. Grant: They fix a provisional price. They know the costs over this particular accounting period, and with the knowledge of those costs the price is fixed.

3308. Chairman: And with regard to the raw materials which are required to make a particular product, you say they are fixed by world-wide trade?

Mr. Grant: Yes, pig iron, nickel, ferro-chrome, all those are market commodities.

3309. Professor Gutteridge: They can find out the price as well as you can?

Mr. Grant: Yes.

3310. Sir Philip Gibbs: Generally speaking, would your prices be checked up by those of Woolwich?

Mr. Grant: Woolwich do not make armour plates and we do not make gun forgings any longer. When the Coventry Ordnance Works were given up, Browns and Firths ceased to make gun forgings, and of course it is only gun forgings on which you can keep a check. But I should say there is no reason why, if we did make gun forgings they could not perfectly well be checked.

Chairman: We are much obliged to you.

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[Continued.]

Mr. Burton: I should be very glad if the secretary would read it, Sir, if he will; and I have a short statement which I thought I might make afterwards.

3314. Chairman: Yes, by all means.

The following letter and enclosure were read:—

The Birmingham Small Arms Co., Ltd.
Small Heath Works, Birmingham.
Managing Director's Office.

July 25th, 1935.

Edward Twentyman, Esq.,

The Royal Commission on the Private
Manufacture of and Trading in
Arms,

8, Buckingham Gate, London, S.W.1.

SIR,

We enclose herewith a statement giving the information asked for in your letter of 24th April last.

In forwarding this statement, we should like to make some observations on the general character and history of the undertaking of the Birmingham Small Arms Company, Limited.

The manufacturing activities of the group are as follows:—

(1) Pedal and motor cycles, cars, small arms, machine guns, sporting guns, are made by the Birmingham Small Arms Co., Ltd., at Small Heath, Birmingham, and sold through B.S.A. Cycles, Ltd., B.S.A. Cars, Ltd. and B.S.A. Guns, Limited.

(2) Motor cars and motor 'buses are made at Coventry, and sold through the Daimler Company, Limited, and the Lanchester Motor Company, Limited.

(3) Small tools and machine tools are made at Sparkbrook, Birmingham, by B.S.A. Tools, Limited, and B.G. Machinery, Limited.

(4) Steel at Sheffield by William Jessop & Sons, Ltd., and J. J. Saville and Company, Limited.

The cycle, motor cycle, gun and machine tool businesses have belonged to the Company for many years, but the interest in the Daimler Company, Limited, was only acquired in 1910, the Jessop and Saville Companies in 1919, and the Lanchester Motor Company in 1932.

The businesses now being carried on at Small Heath by The Birmingham Small Arms Company, Limited, are as set out in (1) above, and the answers to Questions Nos. 1 to 7 and No. 9 in your letter relate to those businesses only.

Although the name of the Company is The Birmingham Small Arms Company, Limited, a large part of its activities have always related to peace-time products, except during war periods, but prior to the Great War the proportion of Government work was very much greater than it is to-day.

The proportion of turnover during the four years ending 31st July, 1913, representing arms and munitions of war were as follows:—

						Per cent.
1913	...	...	...	...	...	33.03
1912	...	...	...	...	...	25.49
1911	...	...	...	...	...	28.95
1910	...	...	...	...	...	21.29

The turnover to-day, as will be seen in the answer to Question No. 2, is practically negligible, and this accounts for the comparatively long period required to build up to the outputs mentioned in answer No. 6.

As a result of war experience, the Company was extremely apprehensive as to the supplies of steel for small arms, etc., after the War, and they therefore acquired the businesses of Wm. Jessop & Sons, Ltd., and J. J. Saville & Co., Ltd., Sheffield, to ensure supplies.

Although, therefore, these two companies have become part of our undertaking for the supply of steel for the manufacture of arms, all figures relating to these companies have been omitted from our reply.

Yours faithfully,

For The Birmingham Small Arms Co., Ltd.,

(Sgd.) GEOFFREY D. BURTON,
Managing Director.

Replies by The Birmingham Small Arms Co., Ltd., to the Questionnaire of the Royal Commission on the Private Manufacture of and Trading in Arms.

July, 1935.

1. Proportion of total turnover attributable to arms and munitions of war:—

1934.	1933.	1932.	1931.	1930.
Per	Per	Per	Per	Per
cent.	cent.	cent.	cent.	cent.
3.02	8.05	5.13	8.95	6.21

2. Sub-division of the above:—

	1934.	1933.	1932.	1931.	1930.
	Per	Per	Per	Per	Per
	cent.	cent.	cent.	cent.	cent.
United Kingdom.	1.02	.93	1.48	1.85	1.36
British Empire	.66	.59	.58	1.21	2.34
Foreign Orders.	1.34	6.53	3.07	5.89	2.51

3. Estimated value of plant employed in the production of arms and munitions of war all of which is, and would be, redundant to the Company's other work. £300,000 covers buildings, plant, machinery, jigs, tools and fixings.

4. Declared profit of the Birmingham Small Arms Co., Ltd., as per balance sheet which includes dividends and the profits and losses of Subsidiary Companies.

1934.	1933.	Loss 1932.	Loss 1931.	1930.
£	£	£	£	£
127,550	245,532	688,647	112,944	242,276

Of the above the following were attributable to arms and munitions of war:—

Loss 1934.	1933.	Loss 1932.	Loss 1931.	1930.
£	£	£	£	£
8,035	46,543	15,970	2,061	10,365

In arriving at these figures no deduction has been made for interest on loan capital.

5. Average number of employees engaged in the production of arms and munitions of war:—

1934.	1933.	1932.	1931.	1930.
169	198	158	270	208

Other products.

1934.	1933.	1932.	1931.	1930.
4,738	3,974	3,568	3,703	4,505

6.

7.

8.

[Replies to these Questions not printed.]

9. All actual orders received for arms and munitions of war have developed from enquiries. The Company does not advertise or solicit orders for arms and munitions of war, but B.S.A. Guns, Ltd., advertise in the press appropriate to retail trade their peace-time products (sporting guns, target rifles, etc.).

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[Continued.]

3315. *Chairman*: Before you make your own statement, I would like to ask a question about your reply to Questions 6, 7 and 8. You claim that that should be treated as confidential, and the replies to these questions are not printed; but when I look at the replies to questions 7 and 8, I do not see any reason why you should not want them printed. No. 6, of course, deals with the expansion question; but in No. 7 you are asked about agreements, and you say you have only one agreement, and that is with an armament firm, the Soley Armament Co., Ltd.

Mr. Burton: Yes.

3316. *Chairman*: But as regards the Soley Armament Co.'s agreement which you refer to, this is an agreement with reference to selling surplus arms, is it not?

Mr. Burton: That is correct, yes.

3317. *Chairman*: I mean, it is only an agreement that you made with this company in order to dispose of government surplus arms?

Mr. Burton: That is correct, yes.

3318. *Chairman*: There is no reason why that should be treated as confidential, is there?

Mr. Burton: No, I do not really think there is. I am sorry; perhaps it was unnecessary.

3319. *Chairman*: It looks to me to be quite unimportant. Then, with regard to the other, No. 8, "Details of the firm's present holdings of the capital of other firms," your answer is: "All these companies are British," and then you state what they are, and they all are British, and have really no material bearing at all upon our Inquiry. Is there is any reason at all why they should not be published?

Mr. Burton: No, there is not, really.*

3320. *Chairman*: Now you wish to make some statement to us?

Mr. Burton: Yes, Sir. I have made a few copies. (Documents handed in.)

1. For some years before the War, the B.S.A. Company was making service rifles at a fairly steady rate, approximately 50,000 per annum.

2. When war broke out this enabled the company quickly to increase its production, and during the War 146,000 Lewis guns and 1,600,000 rifles were manufactured. Our final capacity at the end of the War was 12,000 rifles, an equal volume in spare parts, and 3,000 machine guns per week.

3. After the War no orders were obtainable and owing to lack of funds the company had to close down its experimental and development departments and dispense largely with the services of its key men skilled in rifle and machine gun production. This condition has obtained more or less the same ever since, except that in 1930 an agreement was come to with the War Office that in consideration of our maintaining our rifle manufacturing plant, we could act as sole selling agents for government surplus rifles and Lewis guns. This agreement is now terminating and has entirely failed in its object on account of the various embargoes on the export of arms. The total sum received due to this contract has been negligible when compared with the cost of maintaining our factory.

4. We have recently received an order for S.M.L.E. Mark III rifles. To execute this order we have so far engaged a number of men, and out of these over two-thirds have left or been discharged as not capable of being trained, and of those remaining with us many are not yet giving satisfactory results. I am trying to point out the difficulty we have in getting men for this work. One reason for men leaving is that when they are taken on and find that there is no sign of continuity of work and that the type of work is strange to them, they make no real effort to learn and eventually give up in disgust

and get employment elsewhere. A typical instance is of a youth who was employed for a period and should have earned £24 on piece work to make his guaranteed day time. His actual earnings were £15 2s. and the company had to make him a present of £8 18s. Another should have earned £25; his earnings were £10 4s. and the company had to find the difference, namely, £14 16s. Both then left our employ.

3321. *Sir Thomas Allen*: Over what period would that be?

Mr. Burton: About three months, I think. I could not give you the exact period. I think it was about ten or twelve weeks. I could find that out accurately if you want it.

This implies not only wastage of money, but also quantities of spoiled material, and the training period lost. If there was evidence of continuity of employment we should soon get men skilled at their work and apprentices who would be prepared to learn the trade; and in this way build up a nucleus which could quickly expand in time of emergency.

5. If it is thought necessary to be ready for an emergency it is clearly desirable to have a factory in an area like Birmingham where a plentiful supply of trainable skilled labour is available. The manufacture of small arms necessitates the employment of very highly skilled men. We believe that outside Great Britain, the policy of government support for private manufacturers has been general, and we further believe that had we not been crippled by lack of support there would have been no necessity for the British government to adopt and purchase foreign makes of small arms as they are doing. The policy of the government since the War has, to some degree, indicated the effect of abandoning the private manufacture of small arms. Instead of development in this country keeping pace with, or being ahead of, foreign countries, it has dropped behind to such an extent that foreign guns and foreign designs of guns have had to be purchased. We believe that had the foreign companies not been operating for many years with the full support of their respective governments, the guns recently adopted in this country would not have been available.

6. It is a generally accepted principle in any industry that a good export business can only be built up on a sound home trade. This certainly applies to guns. If the B.S.A. Company had received the support of the British government they would naturally be in a better position to compete in other markets because their costs would be reduced. Therefore, instead of factories like—then I give the various names—being busy as they have been for a number of years while B.S.A. stood practically idle, the B.S.A. Company would be working to capacity and in an emergency would immediately be able to switch entirely on to home requirements.

7. The lack of interest by the British government in arms development since the War has resulted in the impression gaining ground that other countries are better able to design small arms than this country. We believe there is evidence to show the reverse, and there are brains in this country very well able to deal with the technical problems involved in small arms design should they receive encouragement.

8. Many of the points above mentioned could be overcome by the government taking over our small arms factory and personnel, but we believe that the difference between a small arms factory operated by the government, and a similar factory trying to earn profits for shareholders, is very definite, and that the company trying to pay a return on capital invested will have greater incentive and urge to ingenuity, which will result in greater progress. Further, when there is little

* Answers to Questions 7 and 8 not printed as they are not relevant.

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[Continued.]

or no demand for arms, at any rate part of the cost of maintaining the organisation can be carried by the company. With a private concern manufacturing other products besides arms, part of the fixed charges can be borne by the other products instead of them all being carried by the arms department.

There is one other little item which I would like to mention, if I may. I notice in the evidence of one gentleman with regard to prices, he mentioned the B.S.A. Company, comparing costs, and I would like to make this point, if I may, comparing with the evidence on page 272*—the price given of £3 3s. 2d. per rifle at Enfield as against £4 3s. 9d. per rifle at the B.S.A.

3322. *Chairman*: Is this in Dr. Addison's evidence?

Mr. Burton: No, in Mr. Baker's. He gave those figures. I only wish to point out that those figures were not comparable, as the prices given for rifles made at the government factories do not include all the items of costs. The figure that he was referring to was for many years back, but at that time, in answer to a question in Parliament, it was stated that the costs at Enfield did not include rates, taxes and other fixed charges, and that if these charges were added, the costs of the rifles made there, and that of the rifles made by the trade, would probably be almost identical. Our view is that in these days of accurate audit, costs can be and are rigidly checked, and any inefficiencies brought to light and rectified. We have freely at our disposal every method adopted by the Royal Small Arms Factory at Enfield, and vice versa. So we get the benefit of that. That is all, Mr. Chairman.

3323. *Chairman*: With regard to paragraph 6 of your statement, you mentioned factories that are busy. Where are they situated?

Mr. Burton: I would rather leave those names out. I do not know whether I ought to have put them in; that is why I did not read them out; but one is in Czecho-slovakia, one is in America—

3324. *Chairman*: There is no reason why you should not read them out.

Mr. Burton: Well, Hotchkiss is in France, Bren is in Czecho-slovakia, and Colt is in America.

3325. *Chairman*: Is Bren the manufacturer of the gun that has been adopted?

Mr. Burton: Yes.

3326. *Chairman*: That is the gun that has been adopted recently, is it?

Mr. Burton: Yes.

3327. *Chairman*: And is that what you are referring to when you speak of the government buying arms from abroad?

Mr. Burton: That is right; and I believe there are others.

Secretary: They do not actually buy Bren guns from abroad?

Mr. Burton: They have the right to manufacture, and they also buy a certain number of guns, I dare say; but it is really the right to manufacture.

3328. *Chairman*: I see—licence.

Mr. Burton: Yes.

3329. *Sir Thomas Allen*: Did you ever make the gun that Bren is superseding?

Mr. Burton: We made the Lewis gun, yes. We made almost the whole number, I think.

Chairman: There is nothing else that I want to ask.

3330. *Dame Rachel Crowdy*: At what date did you enter into your agreement with the Solely Armament Co.?

Mr. Burton: 1930.

3331. *Dame Rachel Crowdy*: Were they a new organisation at the time, or had they been in existence ever since the War?

Mr. Burton: They were a new organisation.

3332. *Sir Kenneth Lee*: A statement was made by Sir Alexander Roger on 13th November, 1935,

saying that owing to lack of orders it had been impossible for your company to carry out the necessary research work.

Mr. Burton: Yes, that is correct.

3333. *Sir Kenneth Lee*: Is that the reason why the progress has not been made?

Mr. Burton: I should say very largely.

3334. *Sir Kenneth Lee*: Is it true that the gun you were making cannot be made on a mass production basis?

Mr. Burton: The Lewis gun, are you referring to?

3335. *Sir Kenneth Lee*: No, the rifle—I meant the rifle, the Enfield rifle.

Mr. Burton: Well, it is difficult to know exactly what mass production means. I have a general idea, but it is rather difficult to define it. Do you mean only done by unskilled labour?

3336. *Sir Kenneth Lee*: Can it be easily duplicated?

Mr. Burton: No, in that sense I suppose it is not a mass-produced article; but no gun that I am aware of, whether it is Bren or any other, can be made without a very high percentage of skilled labour.

3337. *Chairman*: But the Bren gun is not a rifle, is it?

Mr. Burton: No, it is not.

3338. *Chairman*: We are speaking of rifles at the moment.

Mr. Burton: Yes. The same applies to rifles.

3339. *Chairman*: We were told that during the War the only rifle obtainable was one that necessarily had to be made by hand labour; whereas in the future there ought to be a rifle that could be produced by mass production. That is what Sir Kenneth is referring to, I think.

Mr. Burton: Well, I do not know of one yet. There may be one in the future, but the skill of human beings has not arrived at that stage yet. I was recently in America, which is, I suppose, the home of mass production, and I saw rifles being manufactured there, and their methods were almost identical with the methods used in the B.S.A. to-day.

3340. *Sir Kenneth Lee*: And that is universal, is it?

Mr. Burton: Well, they are not universal, but if there were better methods I think we should get to know about them.

3341. *Sir Kenneth Lee*: But if you had done your research work, you might have designed a rifle which could have been manufactured more easily?

Mr. Burton: Oh, yes. I do not say we should have reached the ideal, but each year we would find some improved method of doing some operation.

3342. *Sir Kenneth Lee*: But you have not been able to do anything owing to the conditions.

Mr. Burton: Well, practically nothing.

3343. *Mr. Spender*: Is there any particular reason for the government giving you orders for small arms for which there is no immediate use, and which may go out of date?

Mr. Burton: I do not think the government would order anything unless they wanted it for probable contingencies.

3344. *Mr. Spender*: But you suggest special orders.

Mr. Burton: Some work to enable a nucleus of men to be trained, in order to enable a company which is not subsidised in any way to carry some development overhead expenses in that way, which is non-productive.

3345. *Mr. Spender*: Supposing that method is adopted, would a subsidy meet your case as well as the method of special orders?

Mr. Burton: No, not solely. I think that is just the difficulty. Just a sum of money will keep our plant in existence, but it will not train our men.

3346. *Sir Philip Gibbs*: In your statement about becoming selling agents for government surplus rifles and Lewis guns, you say: "This agreement is now terminating and has entirely failed in its object on account of the embargo on the export of arms." The embargo to what countries?

* *Minutes of Evidence*, 10th Day, p. 272.

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[Continued.]

Mr. Burton: Well, China was one; certain countries in South America.

3347. *Sir Philip Gibbs*: You mean Paraguay and Bolivia?

Mr. Burton: Yes.

3348. *Sir Philip Gibbs*: Any other countries?

Mr. Burton: Lithuania.

3349. *Dame Rachel Crowdy*: The Chinese embargo only lasted a fortnight, did it not?

Mr. Burton: It lasted long enough so that we did not get the order.

3350. *Sir Philip Gibbs*: Then you have made an arrangement with the Soley firm, represented by Captain Ball, for surplus stock, have you not?

Mr. Burton: Yes.

3351. *Sir Philip Gibbs*: Is that still in existence?

Mr. Burton: Well, it is a collateral arrangement with the government one, so it is terminating also. It is in process of finishing off.

3352. *Sir Philip Gibbs*: So that the two things coincide?

Mr. Burton: Yes.

3353. *Sir Philip Gibbs*: Could you tell me any idea why you chose that particular firm?

Mr. Burton: Well, it was before my time. Captain Ball is here, sitting on my right. He represents the Soley Armament Company.

3354. *Sir Philip Gibbs*: I was trying to get your point of view.

Mr. Burton: We had no one, as I understand it, who was *au fait* with the American customers and the people who would buy these surplus rifles, and the government wanted to dispose of them.

3355. *Sir Philip Gibbs*: And was it by any government advice, or on credentials from the government, that you appointed Captain Ball?

Mr. Burton: No, certainly not; but I think they might have raised objections if they did not approve of him, or something like that; but we were left free to deal with the matter as we liked.

3356. *Sir Philip Gibbs*: And you happened to know that he was engaged in that type of business?

Mr. Burton: Yes, I think that is the case. It was before my time, actually. I was not there at the time.

3357. *Sir Philip Gibbs*: Now, with regard to this new machine gun which the government has adopted, is it a matter only of price, or is it a matter of superior design, in your opinion?

Mr. Burton: Well, I have not heard it yet. I imagine that the government must think it is a design better than any before, or else they would not have adopted it.

3358. *Sir Philip Gibbs*: It would not be governed by price considerations?

Mr. Burton: I should think that would be very secondary. I do not know.

Sir Philip Gibbs: I think that is all the questions I want to ask you. Thank you.

3359. *Sir Thomas Allen*: Just two questions only. Your statement is dated July, 1935, and you give the figures up to 1934. Have you any available for 1935?

Mr. Burton: Well, actually our year ends at the end of July of each year, so when we got these figures out we had not got the figures for the subsequent year, but they are available now. I do not think there has been much difference.

(The witness withdrew.)

Captain JOHN BALL, director, SOLEY ARMAMENT COMPANY, LIMITED, called and examined.

3371. *Chairman*: Now, the last company we want to inquire into to-day is the Soley Armament Company. This is Captain Ball. I have not any details about you, Captain Ball. Were you in the army?

Captain Ball: The Air Force.

3372. *Chairman*: Our Air Force.

Captain Ball: Yes.

3373. *Chairman*: For how long?

3360. *Sir Thomas Allen*: In your reply to our secretary's letter, you say that as a result of war experience the company was extremely apprehensive as to the supplies of steel for small arms, and that that led you to acquire the business of William Jessop & Sons, Ltd., and J. J. Saville & Co., Ltd. Would that be on account of a steel ring that made you apprehensive?

Mr. Burton: No. Again I am afraid it is before my time, but I was in the steel trade myself then, and there was a great shortage of steel at that time, and everybody believed that there was enormous prosperity going on and on, and everybody thought there was going to be a great shortage of steel.

3361. *Sir Thomas Allen*: That was the only ground upon which you were apprehensive?

Mr. Burton: Yes. I do not think it was anything to do with price.

3362. *Sir Thomas Allen*: Nothing to do with the ring preventing you getting supplies at all?

Mr. Burton: No. I do not think so. I am sure that would not be so.

3363. *Professor Gutteridge*: I take it that really what has put a difficulty in your way is the existence of this second-hand trade in rifles, is it not?

Mr. Burton: Well, if there had not been any rifles left over from the War, no doubt we should have had some orders to make up the normal wastage by the existing army.

3364. *Professor Gutteridge*: What has created the difficulty for you has been the disposal of these second-hand guns?

Mr. Burton: The fact that America made a great number of rifles.

3365. *Professor Gutteridge*: Do not you think there is a strong case for the suppression of this trade in used weapons from the national point of view on that ground alone?

Mr. Burton: Well, I do not know. They might be wanted in an emergency, might they not? 3366. *Professor Gutteridge*: I do not see any harm in their being put away in an armoury, but I am suggesting to you that it is an unwise thing to have a traffic in these second-hand weapons from the national point of view.

Mr. Burton: I do not know whether I am able to answer that very well. It is a matter of opinion, is it not?

3367. *Professor Gutteridge*: As a matter of fact, the world was flooded with second-hand weapons of all kinds just after the War.

Mr. Burton: Yes. I think that was so.

3368. *Professor Gutteridge*: I remember a period when one was offered bayonets and steel helmets.

Mr. Burton: Yes, of course one was.

3369. *Dame Rachel Crowdy*: Talking about the Bren gun just now, you said, if I understood you, that the government had both the right to manufacture and had also imported.

Mr. Burton: Well, I do not know; I am not quite sure about the importation. It was stated in Parliament that they had adopted the Bren gun.

3370. *Dame Rachel Crowdy*: Have you made any at all—your firm?

Mr. Burton: No.

Chairman: Thank you. That is all, unless there is anything you want to say to us.

Mr. Burton: Thank you, Sir.

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Captain JOHN BALL.

[Continued.]

Captain Ball: It would be about 1925.
 3377. *Chairman:* And did you get from the government a sole agency?

Captain Ball: Oh, no.

3378. *Chairman:* What was your position?

Captain Ball: Our position with regard to the government was, in connection with the B.S.A., that the B.S.A. had the sole selling rights of its arms, and we had the selling rights from the B.S.A.

3379. *Chairman:* You took it from them?

Captain Ball: We took it from them.

3380. *Chairman:* Had they an exclusive right?

Captain Ball: Yes.

3381. *Chairman:* They had an exclusive agency?

Captain Ball: Yes, in place of a subsidy.

3382. *Chairman:* The last witness told us about that, that they had the exclusive agency given to them.

Captain Ball: In place of a subsidy, yes.

3383. *Chairman:* And you acted for them?

Captain Ball: Yes.

3384. *Chairman:* Had you a free hand to get orders and to arrange the despatch of the guns, and all the rest of it?

Captain Ball: Oh, yes.

3385. *Chairman:* And to fix the prices?

Captain Ball: Subject, of course, to the issue of the necessary export licences; but with regard to the acquirement of orders I had a free hand.

3386. *Chairman:* And fixed the prices?

Captain Ball: Yes, within limits set down by the B.S.A. and the War Office.

3387. *Chairman:* Did they fix a limit?

Captain Ball: They fixed the minimum prices.

3388. *Chairman:* The government?

Captain Ball: The prices that I should have to pay, yes.

3389. *Chairman:* And then you made what profit you could, was that it?

Captain Ball: I made whatever I could get.

3390. *Chairman:* You were not working on commission, or anything?

Captain Ball: Oh, no.

3391. *Chairman:* What profit you could get?

Captain Ball: Yes.

3392. *Sir Philip Gibbs:* Did you buy them from the government?

Captain Ball: Well, we do not exactly buy them. If we receive an order, we pay the government and issue them on an export licence.

3393. *Professor Gutteridge:* You are a broker really, are you not?

Captain Ball: Just a broker.

3394. *Sir Philip Gibbs:* You do not buy them in advance?

Captain Ball: Oh, no.

3395. *Chairman:* And then you had to arrange for the despatch.

Captain Ball: That is so.

3396. *Chairman:* Sometimes it turned out, did it, that the intending purchaser could not get the arms by the direct route? That was so, was it?

Captain Ball: That was so.

3397. *Chairman:* So you had to arrange a devious route?

Captain Ball: We never arranged a devious route. We have never tried to arrange a devious route.

3398. *Chairman:* Never tried?

Captain Ball: No.

3399. *Chairman:* Well, I am not sure about that. I think your letters seem to show that you had tried and succeeded.

Captain Ball: Oh, no, Sir. We said that if the American government liked to buy the arms, they could do then what they liked with them; the responsibility was on their shoulders; so far as we were concerned, we could do nothing.

3400. *Chairman:* Yes; but that was a devious way, was it not, by introducing somebody else who could pass them on without difficulty?

Captain Ball: If the American government agreed, it was nothing to do with us.

3401. *Chairman:* But if you had told the English government when you asked for the licence that that was what you were going to do, you would not have got the licence?

Captain Ball: Well, we did not in fact, because that is exactly what we did do—we did inform the British government.

3402. *Chairman:* And did not the guns go at all?

Captain Ball: The British government knows perfectly well everything we do. We do not get a licence otherwise.

3403. *Sir Thomas Allen:* Would you explain to us a little more explicitly what is the relation, say, between you and the B.S.A. and the War Office? How does it pan out?

Captain Ball: Well, the B.S.A. are the agents for the War Office, and we are the agents for the B.S.A.

Secretary: For the sale of what?

Captain Ball: For the sale of the War Office surplus rifles.

3404. *Sir Thomas Allen:* Then you being the agents for the B.S.A., you immediately come in contact with the War Office?

Captain Ball: Yes.

3405. *Sir Thomas Allen:* And not the B.S.A.

Captain Ball: Not the B.S.A., no.

3406. *Sir Philip Gibbs:* But you are a private firm, are you not?

Captain Ball: Yes.

3407. *Sir Philip Gibbs:* Quite independent of the B.S.A.?

Captain Ball: Oh, quite independent of the B.S.A.

3408. *Sir Philip Gibbs:* And you deal in arms quite irrespective of War Office stock?

Captain Ball: Yes, quite so.

3409. *Chairman:* I see in your letter that you write to our secretary, in answer to our request for information, you say: "Maybe in our letters we were not particularly careful in our choice of expression, for the letters were of a matey variety."

Captain Ball: Yes.

Chairman: But you adopted the same form of language towards us, did you not, because in the latter part of your letter you say: "In spite of all this, most portions of the U.S.A. press and a few of the British publications suggested that we were as devoid of morals as the Italian organ-grinder's monkey." Is that a type of your matey conversation? Well, I have nothing more to ask you. Very well.

3410. *Dame Rachel Crowdy:* Captain Ball, I should like very much to know how you first got into the business. Could you tell us that, or what your special qualifications were? Had you travelled a great deal, or had you affiliations in other countries? Tell us anything you can, will you?

Captain Ball: Having travelled a great deal, and having had connections in various countries.

3411. *Dame Rachel Crowdy:* As what? In what respect?

Captain Ball: With regard to small arms.

3412. *Dame Rachel Crowdy:* During the War, or after?

Captain Ball: Before the War and during the War.

3413. *Professor Gutteridge:* Were you a stores officer in the Flying Corps then?

Captain Ball: Yes—no, technical.

3414. *Professor Gutteridge:* Not a pilot?

Captain Ball: Yes, a pilot also, but mainly technical.

Chairman: I think we had better ask questions in turn. Dame Rachel Crowdy is in charge of the proceedings at the moment.

Professor Gutteridge: I beg your pardon.

3415. *Dame Rachel Crowdy:* If you could tell us a little more of your back experience I should be very grateful. Were you in any way connected with armament firms before you took up this business in different countries?

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Captain JOHN BALL.

[Continued.]

Captain Ball: No, in no way.

3416. *Dame Rachel Crowdy:* What made you see the opportunity in this trade?

Captain Ball: Well, that is very difficult to reply to. I mean, I am an expert in small arms; they have been a hobby of mine all my life, and naturally it is the line of least resistance.

3417. *Dame Rachel Crowdy:* And the greatest market?

Captain Ball: Yes.

3418. *Dame Rachel Crowdy:* Now could you tell us, have you any agents in any part of the world?

Captain Ball: Oh, yes—well, not exactly agents, but I have connections, you see.

3419. *Dame Rachel Crowdy:* Could you tell us something of those connections. I should like to know the agents if you have any, where you have them, and any companies with which you are affiliated in different parts of the world.

Captain Ball: We are not affiliated with any companies at all at the present time.

3420. *Dame Rachel Crowdy:* How do you interpret the word "affiliation?"

Captain Ball: Not having a financial and working connection with them.

3421. *Dame Rachel Crowdy:* Have you no relationship with American firms, for example?

Captain Ball: None whatever at the present time. The arrangement we made with the American firms was for six months only. It was a purely tentative arrangement.

3422. *Dame Rachel Crowdy:* Your arrangement with Miranda is at an end, then?

Captain Ball: Completely.

3423. *Dame Rachel Crowdy:* Could you tell us, then, about your agencies and your agents, in what parts of the world you have them?

Captain Ball: We have an agency in Liege, Berlin—that is the lot at the present time.

3424. *Dame Rachel Crowdy:* None in the Far East?

Captain Ball: No.

3425. *Dame Rachel Crowdy:* None in South or Central American countries?

Captain Ball: No.

3426. *Dame Rachel Crowdy:* When you speak of your agency in Liege, are you speaking of your own factory in Liege, because you have a factory, have you not?

Captain Ball: Speaking of the factory we have there?

3427. *Dame Rachel Crowdy:* It is actually your factory, not merely your agency?

Captain Ball: Yes; but that factory exists for the conversion of rifles from one calibre to another. We take an unsaleable rifle and make it into a saleable one.

3428. *Dame Rachel Crowdy:* Have you factories anywhere else?

Captain Ball: None.

3429. *Dame Rachel Crowdy:* None at all?

Captain Ball: No.

3430. *Dame Rachel Crowdy:* In any part of the world?

Captain Ball: No, none.

3431. *Dame Rachel Crowdy:* I am very interested in reading through some of these letters to see the places you ship from. You do a good deal of shipping away from English ports, do you not?

Captain Ball: Oh, yes.

3432. *Dame Rachel Crowdy:* Could you tell us why? *Captain Ball:* For the simple reason that the material comes from the continent.

3433. *Dame Rachel Crowdy:* The material you are shipping comes from the continent?

Captain Ball: The material we are shipping comes from the continent. If it is continental material, if we are selling mauser rifles on the continent, we ship it from continental ports. There is no necessity to bring them to England.

3434. *Dame Rachel Crowdy:* Your shipment, for example, in the *Black Gull* was from Antwerp?

Captain Ball: To where?

3435. *Dame Rachel Crowdy:* Well, I think, as far as I can remember—was that your shipment to Bolivia? I am not sure. I do not think it was.

Captain Ball: No. We have never shipped a single rifle to Bolivia.

3436. *Dame Rachel Crowdy:* No. You did some shipping from Antwerp; I remember very definitely. I think I can find out without much difficulty.

Captain Ball: To what destination?

3437. *Dame Rachel Crowdy:* No; it was your shipment to America that was from Antwerp. There is a letter from you of February 3, 1934.

Captain Ball: But that was with regard to the samples that went to Miranda—a sample consignment of rifles.

3438. *Dame Rachel Crowdy:* Why did they go from Antwerp particularly? Were they born and made in that part of the world?

Captain Ball: No, the rifles had been reconditioned in Liege, and Antwerp being the nearest port, they were sent from Antwerp.

3439. *Dame Rachel Crowdy:* The rifles were presumably bought on the continent and re-fashioned at Liege.

Captain Ball: Yes.

3440. *Dame Rachel Crowdy:* I have been reading through some of these letters. You have probably got Part 3, have you not, of the proceedings of the American Inquiry?

Captain Ball: I have not.

3441. *Dame Rachel Crowdy:* I am sure that someone could give it to you. (Document handed to witness.) The letters I am going to quote from will be from about page 674, roughly, to page 685. The way in which this transaction is carried out, if one understands it rightly, is described in Exhibit 260, which you will find on page 678. Have you got that?

Captain Ball: Yes.

3442. *Dame Rachel Crowdy:* I will read it. Half-way down, on page 680, you are writing to the American Arms Corporation, and you say:

As you are no doubt aware, China consumes a vast quantity of small arms per year, and they have bought large quantities of rifles from us, mainly Mausers (over 100,000 in 1931/32) but have slacked off lately owing to the loss of Manchuria, and the shortage of ready money in the south—i.e., Canton and Nanking. In spite of all the dreams of the idealists, who imagine that homo sapiens is filled with honor, justice, love, and self-sacrifice, Japan is going to take a still larger slice of China, and comparatively shortly, while the getting is good. To place herself in a favorable position, Japan must either buy over the Soviet or fight them—and Japan will do one or the other, before attending to some more of China.

Such a move on Japan's part would seriously affect the U.S. interests in China, and we think that the U.S. would under the above circumstances support the Chinese, supply them with arms, etc.

In such an eventuality, something might be done with the big stocks of rifles here, also M.G.s, and we think it might be very advisable for you to approach the U.S. Dept. for Foreign Affairs and the War Dept., and hand them a list of what stocks there are over here, informing the Depts. at the same time that you are the sole representative for the U.S.A.

Well, one of the things we have tried to find out in this Inquiry is whether preparation is preached by any of the firms connected either with the manufacture or with the sale of arms; and certainly, as I read this letter, you are definitely putting into the mind of the United States that they had better buy arms or obtain arms if possible from us over here in order that they may support the Chinese, and presumably, to follow that up rather more, in order that China may oppose Japan in some way or another. That seems to me to come very much within the category of preparation.

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[Continued.]

Captain Ball: Yes, I quite agree.

3443. *Dame Rachel Crowdy*: And I should like you to make any comment you care to on that.

Captain Ball: Well, the only comment I have to make is that I should call it intelligent anticipation on my part.

3444. *Dame Rachel Crowdy*: Yes; I think from your business point of view it probably is; but I wonder whether it shows anything else as well.

Captain Ball: I have no other point of view.

3445. *Chairman*: He says he has no other point of view.

Captain Ball: In dealing with arms, I have no other point of view.

3446. *Dame Rachel Crowdy*: Well, that is very courageous of you.

This is only our suggestion to you, and you may possibly have other ideas of your own as to how such a matter should be handled—for instance, it might be better to bring the stocks to the notice only of some of the "big business" gentlemen, and leave any possible wangles to them, for they even might see quicker possibilities in such a stock.

Then you add a sentence with which I quite agree,

Nothing would surprise us . . . and continue . . . but bear in mind that the world's stocks of small arms have shrunk very much during the last three years, and we certainly think that our stock is the only one left of any importance.

Why did you feel that you could not get rid of these rifles? If you wanted to get rid of them, why could not you get them yourself straight to China? Why did you have to press on your American friends to—?

Captain Ball: Because the Chinese government, at the time, had not the necessary finance to pay for them.

3447. *Dame Rachel Crowdy*: And it was better for the United States to stand the loss of that than your firm?

Captain Ball: Well, why not, Madam? Certainly. We were not going to do it.

3448. *Dame Rachel Crowdy*: Then you will also find, on page 684, I think, an answer from Mr. Miranda to a letter of yours. Your letter is dated 6th February, 1934, and he says to you:

Your remarks anent greasing the wheels that make the deals go around are very true and we fully appreciate that very often oil must be added to your quotations. In this connection will you make it a point to always quote us your prices net to us c.i.f. New York unless we specifically make a different request.

Well, that is a definite acceptance of the fact that whatever other firms tell us, palm-greasing is something you recognise.

Captain Ball: Oh, most certainly.

3449. *Dame Rachel Crowdy*: Completely, in your business?

Captain Ball: Yes.

3450. *Sir Thomas Allen*: Did you say "certainly"?

Captain Ball: "Most certainly." The people are not going to do anything for nothing.

3451. *Sir Thomas Allen*: One would like to know; that is all.

Dame Rachel Crowdy: Now, in the correspondence between yourself and this American firm—I think you are no longer connected in any way, you tell us—there is a great deal of talk about supplying the Bolivian government with this, that and the other, and if I can find it I think there is one letter where you say—yes, it is an earlier letter, the letter No. 260 on page 680. You say:

We have, of course, heard from several sources that Bolivia wants A.A. guns quickly; but we do not think for a moment that a shipment or sale to Bolivia could be made direct, while that country is at war. If, however, an American ornament firm of some standing bought the guns, for eventual re-sale, things might be easier—or if

the Colombian government, who are not at war, bought the guns, they could no doubt have them.

Is not that a very definite proposal, as our Chairman said just now, to evade our own Board of Trade regulations, our export licence?

Captain Ball: Not a bit. These guns would probably come from the continent. There is no difficulty at all in shipping the guns from the continent; they had no export licence system there.

3452. *Dame Rachel Crowdy*: But you do not object to the British guns going to countries when the British government is enforcing an embargo on export to that country . . .

Captain Ball: Most certainly not.

3453. *Dame Rachel Crowdy*: . . . as long as it does not go direct from your firm?

Captain Ball: As long as it does not go direct from this country. If they are British guns in the possession of continental people, of which there are any amount, we have not the slightest objection, because we know very well those guns did not leave this country with the consent of the British government. That is the point. It is a matter of policy, Madam.

3454. *Dame Rachel Crowdy*: It seems to me to go rather beyond policy; but that I think is for discussion.

Captain Ball: At the present time the British government has refused to allow the export of British rifles to Abyssinia—that is, government-owned arms from the surplus stocks—in spite of the fact that very big orders have been placed; but there are on the continent very large stocks of British rifles and British guns that were left in the various countries after the War, in Italy, for instance, and in France and Belgium, and there is nothing to prevent those British rifles going to Abyssinia at the present time.

3455. *Dame Rachel Crowdy*: Then your theory really is, Captain Ball, that it is wise to keep within the letter of the law, but that the spirit of the law is as nothing.

Captain Ball: Quite.

3456. *Dame Rachel Crowdy*: You are very clear as to what you feel about these things, because I see that at the time this correspondence is dated—

Captain Ball: The only thing that the British government is concerned with is the letter of the law, in so much that they cannot prevent the shipment of British rifles from other countries to any of the countries under an embargo. They cannot prevent it. How can they prevent it?

3457. *Dame Rachel Crowdy*: I am glad to say I do not think it is the only thing with which the British people are concerned; but I do not propose to enter into an argument on that. I see that the time when this Bolivian correspondence is going on is the time that we were imposing an embargo.

Captain Ball: On Bolivia?

3458. *Dame Rachel Crowdy*: On Bolivia, yes. Then I see again there is a good deal of exporting of arms to China. At that time we had no embargo; as I mentioned just now the embargo was a very short one, only a few weeks, applying both to China and Japan; but at the same time it was a moment when China and Japan were very much as they are now, at each other's throats, and I should like to know if at that time any of your arms supplies were reaching Japan. Do you know; can you tell us?

Captain Ball: None at all.

3459. *Dame Rachel Crowdy*: Nothing at all?

Captain Ball: None at all.

3460. *Dame Rachel Crowdy*: Then to end this I should like you to turn to page 685, that is Exhibit 263. You will find it relates to arms supplied to Cuba. Now it is not a letter to you or a letter from you, but the previous letter to you from Miranda does throw some light on it, I think. In the previous letter Miranda says:

With reference to the International Ordnance and Instrument Company about which you write

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Captain JOHN BALL.

[Continued.]

us in your letter of February 9th: We know this company very well and we know their managing director, Mr. Figuerola, who, at this time is abroad. They have close connections in Cuba and at times are entrusted with orders from the Cuban Government. We have recently finished a contract with them for artillery ammunition and are very well acquainted with them; therefore we shall pursue your negotiations with them on the subject of revolvers without undue delay.

Therefore I presume that this next letter is rather a continuation; but the arms that are supplied, which I imagine come from you to the American firm and have gone on to Cuba, are being supplied to Colonel Batista.

Captain Ball: We have never supplied any arms to Cuba either direct or through Miranda, and the letter shown as Exhibit No. 263 is quite strange to us; it is the first time I have seen it. How it becomes attached to our correspondence on the other side I have not the faintest conception.

3461. Dame Rachel Crowdy: Do not you think because of your close connection with Miranda, and Miranda's close connection with Cuba?

Captain Ball: I do not think so, madam. This letter is completely strange to me, completely new to me. We have never seen it before.

3462. Dame Rachel Crowdy: In those circumstances, then, accepting what you say—

Captain Ball: It may have been attached to it as circumstantial evidence, but I can assure you we have never seen it and we have never sold anything to Cuba.

3463. Dame Rachel Crowdy: Would you turn back to No. 262 again, then? What does "your negotiations" mean? The letter is written to you. They have recently finished a contract with them for artillery ammunition and are very well acquainted with them; "therefore we shall pursue your negotiations with them"—and there is a mention of Cuba in this same paragraph, "on the subject of revolvers without undue delay". What does that mean?

Captain Ball: Which paragraph is that?

3464. Dame Rachel Crowdy: It is the sixth paragraph on page 684. Certainly an amateur onlooker like myself reading this letter would assume that there was at least a question of you supplying arms which could go on to Cuba.

Captain Ball: Yes, but the paragraph you refer to indicates a connection between the International Ordnance Company and Miranda, not with us.

3465. Dame Rachel Crowdy: Then what does "your negotiations" mean when the letter is addressed to you—"therefore we shall pursue your negotiations with them"—"them" being people who have close connections with Cuba.

Captain Ball: The International Ordnance & Instrument Company applied to us for certain material direct here in London. We said: "No; our representatives for the north of South America or Cuba are Miranda & Co.", and we referred them to Miranda and that is Miranda's reply.

3466. Dame Rachel Crowdy: And the negotiations were for what?

Captain Ball: They came to nothing.

3467. Dame Rachel Crowdy: But what were they for?

Captain Ball: They came to exactly nothing.

3468. Dame Rachel Crowdy: Can you tell us what those negotiations were for?

Captain Ball: Various material.

3469. Dame Rachel Crowdy: Arms of different kinds?

Captain Ball: Small arms; but it came to nothing. We referred them to Miranda.

3470. Dame Rachel Crowdy: Yes. I still do not understand that paragraph. I will not develop the subject, but I still do not think that that paragraph, we shall pursue your negotiations,—with these people in Cuba,—is very clear.

Captain Ball: In other words, we had interviews with the International Instrument Company which were continued by Miranda, and Miranda says in the paragraph, "We shall continue your negotiations".

3471. Dame Rachel Crowdy: . . . we shall pursue your negotiations with them on the subject of revolvers,—evidently revolvers for Cuba. I happen to be particularly interested because I was in those two Cuban revolutions at the time, and seeing that the next letters refers to Colonel Batista I wanted to know if you or Miranda were supplying revolvers and arms generally not only to Colonel Batista, who as far as I remember, was the corporal who became the President of Cuba for a short period of time, but at the same time to Manduel and Crochada and the various other people who were leading either presidential or revolutionary movements in Cuba; but you say that none of your arms have by any means got to Cuba.

Captain Ball: To the best of my knowledge and belief we have never sold a single arm to revolutionaries, and do not intend to either.

3472. Dame Rachel Crowdy: That is a very high principle, is it not?

Captain Ball: And we are quite capable of seeing that they do not get into the hands of revolutionaries, too—nobody more so.

3473. Dame Rachel Crowdy: I think that is all I have to ask, Mr. Chairman.

Captain Ball: Our business is conducted more and more, if I may say so, purely with governments or the official representatives of governments. Under no circumstances do we sell arms at any time to private individuals or to syndicates or to banks or to anyone else other than the authorised representatives of an established or recognised government, and it is impossible for anyone to prove otherwise. There have been all sorts of suggestions that we have heard with regard to our activities in that direction, but I can assure you that there is no truth in any of them.

3474. Dame Rachel Crowdy: That reminds me of a question I wanted to ask you. Can you give me the exact position that Miranda held vis-à-vis the State Department of the U.S.A.?

Captain Ball: Well, he is one of the American manufacturers who manufactures in small quantities for the American government and various other governments.

3475. Dame Rachel Crowdy: You would not call him officially the agent of the American government. Would the State Department agree with that?

Captain Ball: I think so; but he was a contractor to the American government.

3476. Dame Rachel Crowdy: But did you never sell to him, then, because you just said that you never sold to anyone but governments?

Captain Ball: We can only sell through government direct. If Miranda gives us an order for 50 rifles, Miranda has to produce an official order to us from the purchasing government, and before we get an export licence for them or before we accept the order we must see the official order from the purchasing government; so that in no circumstances can our material get into unofficial hands, because the first thing that happens if they do is that a complaint is made to the British government and my position and that of the B.S.A. vis-à-vis the British government would be in jeopardy. I should be foolish to do such a thing.

3477. Dame Rachel Crowdy: So that it merely means handing on the bricks from one government to another.

Captain Ball: Absolutely nothing else.

3478. Mr. Spender: I should like, if I may, to get a little closer to the facts about this company and your association with it. Are you a salaried representative of the Solely Armament Company?

Captain Ball: No, I am the Solely Armament Company.

3479. Chairman: Limited?

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Captain JOHN BALL.

[Continued.]

Captain Ball: Yes—by myself.

3480. *Mr. Spender:* Correct me if I am wrong in a minute, but the circumstances are that you, the Sole Armament Company, obtain from the Birmingham Small Arms Company the agency for the sale of these surplus rifles?

Captain Ball: Yes.

3481. *Mr. Spender:* Now that was approved by the War Office?

Captain Ball: It was not objected to by the War Office.

3482. *Mr. Spender:* And from that time you had dealings direct with the War Office?

Captain Ball: From that time direct, yes.

3483. *Mr. Spender:* Then substantially the War Office must have approved. Now you have got this reconditioning factory at Liege, and presumably you exported a considerable number of British rifles and other arms to Liege for reconditioning?

Captain Ball: Yes.

3484. *Mr. Spender:* Did you get licences for sending them to Liege?

Captain Ball: Yes, certainly.

3485. *Mr. Spender:* Then after that have you despatched from Liege both these rifles and mausers which you bought from other sources?

Captain Ball: From other sources, yes.

3486. *Mr. Spender:* And you despatched all those from Belgium without any licence?

Captain Ball: Oh, yes—we did not despatch the British rifles from Belgium without a licence. We part with no British rifles without the previous consent of the British government. There is a special term to that effect. If we take a thousand rifles to Liege for conversion to another calibre, we do not dispose of those rifles without the consent of the British Foreign Office—the previous consent—absolutely.

3487. *Mr. Spender:* Is that of your own free will?

Captain Ball: No, that is a condition imposed upon us by them that it would not pay us to break.

Secretary: Is it a condition of the licence?

Captain Ball: The usual Board of Trade export licence.

3488. *Chairman:* Have you got a general licence or do you get a particular licence?

Captain Ball: No, we get a special licence.

3489. *Chairman:* I mean containing the conditions and terms and everything.

Captain Ball: Containing the conditions under which the rifles are exported.

3490. *Mr. Spender:* Then, as I understand it, all the British rifles that went out of Liege went under British licence.

Captain Ball: Certainly.

3491. *Mr. Spender:* And all the other arms—mausers and others—went without any licence.

Captain Ball: They went without any licence then because Belgium at the time had no export licence system.

3492. *Mr. Spender:* Can you give us an idea of the proportion between the two things you were handling—the British licensed and the foreign?

Captain Ball: About one per thousand—one British rifle to a thousand mausers.

3493. *Mr. Spender:* Let me understand. The British rifles are one thousand to one?

Captain Ball: We exported one British rifle to every thousand mausers—probably less than that.

3494. *Mr. Spender:* Then you were really agents for the export of mausers largely, which you considered yourself free, as you were free, to export from Belgium without any licence at all?

Captain Ball: Oh, certainly.

3495. *Mr. Spender:* So for the greater part of your business you claim to be quite free of licence?

Captain Ball: At the time. Of course, Belgium has since introduced an export licence system and we are not free now.

3496. *Mr. Spender:* We have had from other companies statements of profit and loss. Have you any statement of profit and loss at the present time?

Captain Ball: Not at the present time. The alleged "profits" are mostly losses.

3497. *Mr. Spender:* We have heard from the Birmingham Small Arms Company that the trading results were disappointing; and they were disappointing to you?

Captain Ball: Equally so, because owing to the imposition of embargoes on export to the various destinations to which we could have sold arms from this country the British taxpayer has probably lost very nearly £2,000,000 in the last seven or eight years. That sum has been sacrificed to policy—and probably quite rightly so.

3498. *Mr. Spender:* You have no concern in policy?

Captain Ball: Certainly I am concerned in policy, where it affects my interest *vis-à-vis* the British rifles.

3499. *Mr. Spender:* With regard to British rifles; but you do not acknowledge any policy with regard to your export of the others?

Captain Ball: Provided it does not interfere with British policy.

3500. *Mr. Spender:* Would you consider, say, in exporting mausers, whether it conflicted with British policy?

Captain Ball: Most certainly I would, because that would affect my position *vis-à-vis* the British authorities at once.

3501. *Mr. Spender:* That is your motive?

Captain Ball: I have that motive.

3502. *Mr. Spender:* You do not claim any higher motive?

Captain Ball: None whatever.

3503. *Mr. Spender:* You speak in very sweeping terms about graft and palm-greasing. Do you suggest in dealing with all your customers it is necessary to do that?

Captain Ball: No, I do not, by any means, but with some of them it is essential; with others not.

3504. *Mr. Spender:* There is a sort of moral meridian?

Captain Ball: It is a matter of latitude and longitude, is it not?

3505. *Sir Kenneth Lee:* Are we to understand that you have no agency at all direct with the War Office?

Captain Ball: No, I have not.

3506. *Sir Kenneth Lee:* No agency?

Captain Ball: No agency direct with the War Office. I become an agent merely with regard to my association with the B.S.A.—in other words, I am as much an agent of the War Office as the B.S.A. The contract was handed to the B.S.A., who handed it on to me.

3507. *Sir Kenneth Lee:* You are not an agent for any other commodities direct with the War Office?

Captain Ball: No.

3508. *Secretary:* Have you been?

Captain Ball: For any other?

3509. *Secretary:* For any other article than rifles?

Captain Ball: We had a steel-helmet contract with them.

3510. *Dame Rachel Crowdy:* Have you ever at any time had a direct agency from the War Office for anything?

Captain Ball: No.

3511. *Secretary:* Not for anything at all?

Captain Ball: No, except for steel helmets.

3512. *Secretary:* Hotchkiss guns?

Captain Ball: But not with regard to rifles.

3513. *Secretary:* Or Hotchkiss guns?

Captain Ball: No. We had an agreement with them with regard to Hotchkiss guns but that also came to nothing, owing to the imposition of embargoes. We paid £2,350 for the selling rights of the Hotchkiss gun and we never sold a gun. We were precluded from selling them by the reimposition of embargoes. We could have sold thousands of those guns at various times.

3514. *Secretary:* Has that agreement terminated?

Captain Ball: It has terminated.

6 February, 1936.]

Captain JOHN BALL.

[Continued.]

3515. *Secretary*: When did it terminate?*Captain Ball*: The agreement terminated in December, 1933.3516. *Sir Kenneth Lee*: Did you say that the Belgians had now instituted a licence system?*Captain Ball*: The Belgian government has a licence system at present. It has a licence system instituted at the present time; probably not quite so stringent as ours, but nevertheless efficient, which it did not have before.3517. *Sir Kenneth Lee*: Is it at all effective?*Captain Ball*: That is a question the Belgian government could answer better than I can.3518. *Sir Kenneth Lee*: From your experience?*Captain Ball*: I should think it would be.3519. *Sir Kenneth Lee*: It has prevented you?*Captain Ball*: Do not forget that anybody who violated it who was living in Belgium would cease to live in Belgium.3520. *Dame Rachel Crowley*: Perhaps you could evade it without violating it?*Captain Ball*: Can it be evaded without your being found out? Madam, it is not possible. You are always found out at the finish.3521. *Sir Philip Gibbs*: Were you in existence as a company before your connection with the B.S.A.?*Captain Ball*: Oh, yes.3522. *Sir Philip Gibbs*: For how long?*Captain Ball*: Since about 1927, I think.3523. *Sir Philip Gibbs*: What were you doing before your connection with the B.S.A.?*Captain Ball*: I was engaged in selling continental rifles, mausers.3524. *Sir Philip Gibbs*: Nothing from this country?*Captain Ball*: Nothing from this country.3525. *Sir Philip Gibbs*: But you had a fairly considerable business on the continent?*Captain Ball*: A considerable one on the continent, yes.3526. *Sir Philip Gibbs*: Sufficient to attract the attention of our War Office perhaps?*Captain Ball*: I do not think so; no.3527. *Sir Philip Gibbs*: You had no dealings with the War Office until you actually joined the B.S.A.?*Captain Ball*: No. I think we had a few dealings with the War Office with regard to steel helmets, but not with regard to armaments.3528. *Sir Philip Gibbs*: May I ask you what you were doing generally between 1918 and 1928, what was your particular business?*Captain Ball*: I was acting as a broker for the sale of arms.3529. *Sir Philip Gibbs*: Abroad?*Captain Ball*: Yes.3530. *Sir Philip Gibbs*: At that time, when Europe and the world generally was in a very turbulent state, with revolutions breaking out in this country and the other, did you find that your markets were good?*Captain Ball*: Unfortunately they were not very good, owing to the non-existence of the necessary finance. It is all a question of money. The desire for the arms was there, but there was no money to pay for them.3531. *Sir Philip Gibbs*: But you were actually doing business?*Captain Ball*: We were attempting to do business.3532. *Sir Philip Gibbs*: You were doing enough to carry on?*Captain Ball*: We were not making a profit. 3533. *Sir Philip Gibbs*: May I ask you this: In those years before you joined the B.S.A. Company who were your best customers?*Captain Ball*: Probably the Latvian government.3534. *Sir Philip Gibbs*: Poland?*Captain Ball*: None.3535. *Sir Philip Gibbs*: Russia?*Captain Ball*: None.3536. *Sir Philip Gibbs*: There is one sense of mystery in my mind which I am sure you will be

able to clear up, as to how you get your stocks of rifles and other munitions of war on the continent. For instance, you have told us—and it is rather surprising—that your continental trade is as one thousand to one.

Captain Ball: Yes.3537. *Sir Philip Gibbs*: How do you get those rifles? What is your method of obtaining them?*Captain Ball*: The only way the rifles can be obtained is by purchasing them as surplus from other governments.3538. *Sir Philip Gibbs*: They are actually in the hands of governments?*Captain Ball*: They are in some cases; in other cases there are governments who are quite ready to sell rifles to any Tom, Dick or Harry who will present them with the money. The majority do that. This is the only country with control.3539. *Sir Philip Gibbs*: Do you find it easy? If you obtain an order from any country in the world you can obtain stocks on the continent?*Captain Ball*: Yes.3540. *Sir Philip Gibbs*: I imagine in most cases that would be through agents, or what I should call middlemen.*Captain Ball*: Yes.3541. *Sir Philip Gibbs*: Would they hold those stocks in their own possession?*Captain Ball*: Some of them hold stocks themselves; other stocks are held by governments.3542. *Sir Philip Gibbs*: Do you find that certain governments are rather easy in delivery if an order comes through?*Captain Ball*: If the money comes through.3543. *Sir Philip Gibbs*: It amounts practically to the same thing. Could you tell us, for our own information, what governments are dealing with these second-hand rifles and so forth? Would France be one of them?*Captain Ball*: No.3544. *Sir Philip Gibbs*: Would Italy be one of them?*Captain Ball*: She might be at the present time but normally no.3545. *Sir Philip Gibbs*: You seem to get very great stocks of these rifles; from what countries mostly do you get them?*Captain Ball*: They are accumulations from various countries—countries like Greece, Bulgaria, Jugo-Slavia.3546. *Sir Philip Gibbs*: And do those stocks exist in those countries or have they been shifted?*Captain Ball*: The stocks usually exist in the country, but they are mainly on such a scale or of such a mixture that the country does not wish to use them.3547. *Sir Philip Gibbs*: There are no central depots?*Captain Ball*: There are no central depots.3548. *Sir Philip Gibbs*: Regarding those mauser rifles from Germany, to what customers do you sell them?*Captain Ball*: Only to governments.3549. *Sir Philip Gibbs*: What governments?*Captain Ball*: The Chinese government—Nanking.3550. *Sir Philip Gibbs*: And, of course, Canton as well?*Captain Ball*: No.3551. *Sir Philip Gibbs*: Never to Canton?*Captain Ball*: No, we have never sold any to the Cantonese government.3552. *Sir Philip Gibbs*: Do you think many of them have reached the Canton government?*Captain Ball*: Oh, yes, undoubtedly, but not from us.3553. *Sir Philip Gibbs*: By devious routes, but not through you?*Captain Ball*: Not through us, either direct or indirect.3554. *Sir Philip Gibbs*: How have they reached the Canton government?

6 February, 1936.]

Captain JOHN BAILL.

[Continued.]

Captain Baill: We are not the only pebble on the beach by any means.

3555. *Sir Philip Gibbs:* You have a lot of competitors?

Captain Baill: There are a number of continental dealers who have been occupied selling rifles for years. We are not monopolists. I wish we were.

3556. *Sir Philip Gibbs:* You feel that a great many of these continental second-hand rifles actually reach countries like China, Bolivia, Paraguay and others?

Captain Baill: There is no question about it, but not from us. The reason they did not come from us was because the Cantonese government would not produce the official importation order from the Nanking government, as required by the British government before arms can be shipped.

3557. *Sir Philip Gibbs:* It could be evaded by shipping to Hongkong?

Captain Baill: Possibly, but we never succeeded. If we attempted to evade any of the regulations laid down by the British government we should be in jeopardy at once. For the sake of temporary profit are we going to jeopardise our normal position? Certainly not. I have to live here. If I get at loggerheads with any of the British official departments what is going to happen?

3558. *Sir Philip Gibbs:* I should not have thought it would have mattered very much to you.

Captain Baill: Why not?

3559. *Sir Philip Gibbs:* Because your business here is only as one to a thousand.

Captain Baill: I quite agree, but that one is worth looking after.

3560. *Sir Philip Gibbs:* It is worth while?

Captain Baill: Oh, yes, it is one at the present time, but it might be reversed in a few years' time.

3561. *Sir Philip Gibbs:* I would like to ask you how many applications you have made to the British government through the Board of Trade for licences which have been refused. I happen to know, but I was rather wondering whether you also knew.

Captain Baill: I could not tell you the exact figure—quite a lot of them.

3562. *Sir Philip Gibbs:* Have you applied for licences knowing that there was an embargo against the sale of goods to certain countries?

Captain Baill: No.

3563. *Sir Philip Gibbs:* You have not?

Captain Baill: No.

3564. *Sir Philip Gibbs:* Are you quite sure of that?

Captain Baill: Positive.

3565. *Sir Philip Gibbs:* Then how is it that those licences have been refused?

Captain Baill: It is not always possible for us to know the private policy of the British government without testing it out.

3566. *Sir Philip Gibbs:* But it is not really a private policy, because licences are only refused with regard to embargoes that have been made public in most cases.

Chairman: Oh, no; that is not correct. I think that they exercise their own discretion.

Captain Baill: They exercise their own discretion.

Chairman: Whether there is an embargo or whether there is not.

Professor Gutteridge: I thought it was made clear that no reasons were given.

Captain Baill: They never give reasons.

3567. *Sir Philip Gibbs:* There have been cases where an embargo has been publicly declared by this government.

Captain Baill: Yes.

3568. *Sir Philip Gibbs:* As against Italy and Abyssinia and Bolivia and Paraguay.

Captain Baill: Yes.

3569. *Sir Philip Gibbs:* Can you assure me that you have not applied for licences to those countries?

Captain Baill: Not since we were aware that the embargo existed. From the moment we know that an embargo exists we will not waste our time in applying for a licence.

3570. *Sir Philip Gibbs:* Do you read the newspapers a good deal?

Captain Baill: Not very often.

3571. *Sir Philip Gibbs:* So you were probably unaware that the *Daily Express* and the *Daily Mail* had published the fact that there was an embargo against Paraguay and Bolivia.

Captain Baill: I do not read either of those papers. I would not be contaminated.

Chairman: I think we are travelling rather wide, *Sir Philip*.

Sir Philip Gibbs: Yes, I think we are.

3572. *Sir Thomas Allen:* Did I understand you to say that large quantities of British rifles were stocked in various countries in Europe?

Captain Baill: Yes.

3573. *Sir Thomas Allen:* On whose account are they stocked?

Captain Baill: They are in the hands of various governments.

3574. *Sir Thomas Allen:* The British government?

Captain Baill: No, they are in the hands of foreign governments.

3575. *Sir Thomas Allen:* I am speaking now of British stocks.

Captain Baill: There are stocks that were made for use by the British army, that were either conceded, or lent, or given to other powers during the world war. This country abandoned 50,000 new rifles in Italy when the War finished, 50,000 rifles that had been paid for by the British government were abandoned in Italy by the British government.

3576. *Sir Thomas Allen:* And they are at the disposal of the British government?

Captain Baill: No; they were disposed of by the Italian government.

3577. *Sir Thomas Allen:* Outside Italy?

Captain Baill: Yes, they are outside Italy now, but they were sold by the Italian government to another power.

3578. *Sir Thomas Allen:* Have you at any time sold any of those?

Captain Baill: I beg your pardon.

3579. *Sir Thomas Allen:* Are any British stocks on the continent at your disposal?

Captain Baill: There are stocks of British rifles at our disposal; we can buy them if we go up with the money.

3580. *Sir Thomas Allen:* You can draw upon those?

Captain Baill: We can draw if we like to pay for them.

3581. *Sir Thomas Allen:* Without going to England?

Captain Baill: Yes.

3582. *Professor Gutteridge:* Have you had any dealings with Hungary?

Captain Baill: None. It is on the prohibited list, under the Treaty of Versailles.

3583. *Professor Gutteridge:* You have had no dealings with them?

Captain Baill: None.

3584. *Professor Gutteridge:* I want to be clear about one thing. Hotchkiss guns were mentioned and I think you said you had at one time a direct agreement with the War Office with regard to those guns.

Captain Baill: Yes.

3585. *Professor Gutteridge:* Is that agreement still continuing?

Captain Baill: It has been renewed in another form. It was renewed in January, until next June.

3586. *Professor Gutteridge:* You mean this January?

Captain Baill: It still exists and it continues. It is a means of offering me some sort of compensation for the payment of £2,350 that is money down the drain as far as I am concerned, because the War Office conceded to us the sole selling rights of this gun in return for that payment, and on every occasion when we attempted to sell them we were prevented from selling them. Whenever we were offered money with the order we were prevented from shipping them by the imposition of an embargo by the Board of Trade.

6 February, 1936.]

Captain JOHN BALL.

[Continued.]

3587. *Professor Gutteridge*: Those guns are in this country?

Captain Ball: They are in this country.

3588. *Professor Gutteridge*: Are the Americans engaged in this second-hand arms trade?

Captain Ball: Oh, yes.

3589. *Professor Gutteridge*: They had a large surplus stock?

Captain Ball: They had very large stocks. They had more than England.

3590. *Professor Gutteridge*: Is there very fierce competition in this trade of yours?

Captain Ball: Not very much.

3591. *Professor Gutteridge*: There are not very many dealers?

Captain Ball: Not very many.

3592. *Professor Gutteridge*: I suppose you are really what I should call a sub-broker in these transactions.

Captain Ball: Yes.

3593. *Professor Gutteridge*: You do not hold the stock yourself; you go round and get orders?

Captain Ball: If we get an order we run round and take it up.

3594. *Sir Philip Gibbs*: What port do you use for the shipment of your goods in Belgium from Liège?

Captain Ball: Antwerp, usually.

3595. *Sir Philip Gibbs*: And since the imposition of a licence system by the Belgian government do you use any other port—free port?

Captain Ball: No.

3596. *Sir Philip Gibbs*: They mostly go from Antwerp?

Captain Ball: Mostly from Antwerp.

3597. *Professor Gutteridge*: What about Hamburg?

Captain Ball: No.

Professor Gutteridge: Hamburg is a free port.

3598. *Dame Rachel Crowdy*: Do you ever ship any on consignment?

Captain Ball: We might ship half a dozen samples on consignment, but in quantities, no.

3599. *Chairman*: Is there a large stock of surplus still in this country undisposed of?

Captain Ball: A very large one.

Chairman: Thank you.

(The witness withdrew.)

(Adjourned.)

APPENDIX 1.

STATEMENT SUBMITTED BY MESSRS. IMPERIAL CHEMICAL INDUSTRIES LTD.

(See QQ. 3053—3068.)

The following Schedule contains particulars relating to all the companies mentioned in the diagram entitled "The Foreign Connections of Imperial Chemical Industries Ltd.", which was submitted to the Royal Commission by the Union of Democratic Control and reproduced as Figure 2b appended to the Minutes of Evidence, 7th and 8th Days. The schedule indicates the nature of the connection (if any) existing between each company and Messrs. Imperial Chemical Industries Ltd.

COMPANY.	PARTICULARS.
AUSTRALIA.	
Nobel Australasia Limited	Wholly owned subsidiary of Imperial Chemical Industries of Australia and New Zealand in which I.C.I. owns 91.75 per cent. Manufacture and sale of mining explosives and kindred products; no military products.
Brunner Mond (Australia) Ltd.	Wholly owned subsidiary of Imperial Chemical Industries of Australia and New Zealand in which I.C.I. owns 91.75 per cent. Sales company; no military products.
Standard Ammonia Company of Sydney.	Wholly owned subsidiary of Imperial Chemical Industries of Australia and New Zealand in which I.C.I. owns 91.75 per cent. Ammonia manufacturing company; no military products.
AFRICA.	
African Explosives & Industries Ltd. ...	An associated company of Imperial Chemical Industries Ltd.; percentage holding 50 per cent. Manufacture and sale of mining explosives, fertilizers, insecticides, etc.; no military products.
Cape Explosives Works Ltd.	Non-operative; subsidiary to and wholly owned by African Explosives & Industries Ltd.
Magadi Soda Co. Ltd.	An associated company of Imperial Chemical Industries Ltd.; percentage holding 26.9 per cent. Manufacture and sale of alkali; no military products.
JAPAN.	
Brunner Mond (Japan) Ltd.	A subsidiary company of Imperial Chemical Industries Ltd.; percentage holding 99.28 per cent. Own sales organisation; not manufacturers.
CHINA.	
Brunner Mond (China)	A subsidiary company of Imperial Chemical Industries Ltd.; percentage holding 98.87 per cent. Name recently changed to I.C.I. (China). Sales company only; not manufacturers.

APPENDIX 1—continued.

COMPANY.	PARTICULARS.
INDIA.	
Brunner Mond (India) Ltd.	A subsidiary company of Imperial Chemical Industries Ltd.; percentage holding 99·68 per cent. Name recently changed to I.C.I. (India). Sales company only; not manufacturers.
AUSTRIA.	
Bickford & Company A. G.	A subsidiary company of Imperial Chemical Industries Ltd.; percentage holding 88·44 per cent. Manufacture and sale of safety fuse and lightning fasteners.
BELGIUM.	
Cartoucherie Belge	Non-existent.
Société Anonyme D'Arendonck	An investment of I.C.I. Percentage holding 29·89 per cent. Manufacture and sale of mining explosives; no military products.
Ancienne Fabrique de Meches de Vise	An investment of I.C.I. Percentage holding 41·66 per cent. Manufacture and sale of safety fuse for mining purposes only; no military products.
Barbier Group (Explosives)	We have an agreement with this company on industrial explosives. No military products.
Comptoir Belge des Engrais Azote	No direct connection. Members of International Nitrogen Cartel, of which I.C.I. also members.
Poudreries Reunies de Belgique	Fertilizers only. I.C.I. has an agreement with this company belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives. The company has recently undertaken the pelleting of T.N.T. for military purposes, but I.C.I. has no arrangement with them in this connection.
Société Anon. de Dynamite de Matagne	I.C.I. has an agreement with this company belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives.
Soc. Anon. de la Poudrerie de Carnelle	No military products. I.C.I. has an agreement with this company belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives. No military products.
Poudrerie Royale de Weteren Coopall	I.C.I. has an agreement with this company belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives. No military products.
Société Belge de la Dynamite Nobel	I.C.I. has an agreement with this company belonging to the Belgian group of explosives manufacturers regulating sales of industrial explosives. No military products.
Solvay et Cie	Commercial and technical agreement relating to manufacture and sale of alkali products; no military products.
SPAIN.	
Union Espanola de Explosivos	We have a patents and processes and sales agreement with this company covering mainly industrial products. The agreement excludes I.C.I. from selling military explosives and powders in Spanish territory, and vice versa. I.C.I. investment of 1 per cent.
CZECHOSLOVAKIA.	
Czechoslovak Explosives Ltd.	An I.C.I. investment of 32 per cent. Manufactures primarily industrial explosives and some military explosives.
Nobel Bickford A.G. Trencin	An I.C.I. investment of 25 per cent. Manufacture and sale of safety fuse for mining purposes only; no military products.
FRANCE.	
Etablissement Kuhlmann	There are a number of agreements with Kuhlmann relating to sodium sulphide, saltcake, dyestuffs, resins, nitrochalk, etc.; no military products.
Société Centrale de Dynamite	No investment or agreement; no military products.
Comptoir Française de L'Azote	I.C.I. has no direct association with this company, who are members of the International Nitrogen Cartel.
Casale Ammonia Company	Fertilizers only. This probably refers to an agreement long since expired between this company, Soc. Italiana Ricerca Industriale and the United Alkali Co. relating to use in U.K. of Casale process of manufacture of ammonia.
Davey Bickford Smith & Company	No investment in or agreement with this company.
Compagnie Continentale de Pegamoid	An I.C.I. investment of 4·63 per cent. Leathercloth producers; no military products.
Cartoucherie Française	An I.C.I. investment of 23·33 per cent. We also have an agreement with them governing the manufacture and sale by them under licence of sporting cartridges and cases; no military products.

APPENDIX 1—continued.

COMPANY.	PARTICULARS.
SWITZERLAND.	
Durand & Huguenin	We have agreements with this company covering licences to British Dyestuffs Corpn. to manufacture certain dyes. Dyestuffs makers; no military products.
GERMANY.	
Rheinisch Westfälische Sprengstoff A.G. ...	We have an agreement with this company relating to licences in respect of tetrazene cap compositions for sporting ammunition, and detonators.
Deutsche Solvay Works	No agreement with this company.
I.G. Farbenindustrie	Alkali products only. An I.C.I. investment of 2·7 per cent. We have also agreements with this company covering various industrial products, but not military products.
Westfälische Anhaltischen Sprengstoff A.G.	We have no agreement with this company.
Dynamit Aktiengesellschaft	We have a patents and processes and sales agreement with this company covering industrial explosives only. No military products.
NORWAY.	
Norsk Sprengstoff Industrie	We have an agreement with this company relating to the sales of and agency for sporting ammunition and accessories for use with industrial explosives. This company makes T.N.T. but no agreement or understanding exists with them on any military product.
ITALY.	
Societe Italiana Ricerche Industriale ...	See under France—Casale Ammonia Company.
Montecatini	No military products. We have an agreement with this company relating to ureaformaldehyde resins and moulding powders. They are members of the International Nitrogen Cartel of which I.C.I. are also members. No military products.
HUNGARY.	
The Hungarian Explosives Company ...	An I.C.I. investment of 12 per cent. No military products.
ROUMANIA.	
Roumanian Explosives Company.	An I.C.I. investment of 20 per cent. No military products.
CHILE.	
Compania Sud-Americana de Explosivos.	An I.C.I. investment of 42·39 per cent. No military products.
ARGENTINA.	
Cartucheria Orbea Argentina	Subsidiary company of Industrias Quimicas Argentinas Duperial S.A., which is an associated company of I.C.I.—percentage holding 50 per cent. This company is equipped, if desired by the Argentine government, to make small arms ammunition.
CANADA.	
Canadian Industries Ltd.	An associated company of I.C.I. Percentage holding 44·19 per cent.
U.S.A.	
Dyestuffs Corporation of America	No investment in or agreement with this company.
Allied Chemical Company	An I.C.I. investment of 0·47 per cent. No military products.
North American Chemical Company ...	No investment in or agreement with this company.
Roesler & Hasslacher Chemical Company ...	Subsidiary company of E.I. du Pont de Nemours. No military products.
General Motors Corporation	Motor car manufacturers; no military products.
E.I. du Pont de Nemours	An I.C.I. investment of 0·89 per cent. We have a patents and processes agreement with this company covering chemical and other products made by the parties, but excluding military products. We have also a purely sales arrangement on military explosives and powders. An I.C.I. investment of 0·175 per cent.

APPENDIX 2.

STATEMENT SUBMITTED BY MESSRS. IMPERIAL CHEMICAL INDUSTRIES LTD.

(See QQ. 3150—3153.)

THE EFFECT ON I.C.I. IF THE EXPORT OF SUBSTANCES OF POTENTIAL USE IN THE MANUFACTURE OF WAR MATERIALS WAS PROHIBITED.

The following are the only products exported by I.C.I. which are considered capable of being used as raw materials for the production of substances for use for lethal purposes, although they have more definite and usual applications in industry:—

Nitric acid for the manufacture of explosives;

Ammonium nitrate for the manufacture of explosives;

Nitrate of soda for the manufacture of nitric acid;

Sulphuric acid for the manufacture of explosives;

Chlorine for the manufacture of poison gas;

Centralite for the manufacture of explosives;

Dimethyl aniline for the manufacture of explosives;

Diphenylamine for the manufacture of explosives;

Glycol for the manufacture of explosives.

Anhydrous ammonia for the manufacture of nitric acid.

Ammonia liquor for the manufacture of nitric acid.

It is not feasible to determine the effect which the abandonment of foreign trade in these products would have upon the retention of plant, but in general terms it is considered that our ability to dilute skilled labour in an emergency would be reduced relatively to the proportion of workers displaced by the loss of foreign business. The following table shows, for each of the five years 1930 to 1934 inclusive, the value of and number of workers employed on these products which were sold outside the British Empire, together with the percentage reduction in our capacity for dilution:—

Year.	Foreign Sales Value. £	No. of Workers.	Reduction of Dilution Capacity. Per cent.
1930	19,905	4	1·2
1931	125,195	52	13·2
1932	73,984	30	6·3
1933	57,024	22	4·3
1934	125,174	61	9·7

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

17

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

SEVENTEENTH DAY

FRIDAY, 7TH FEBRUARY, 1936

WITNESSES—

ON BEHALF OF THE SOCIETY OF BRITISH AIRCRAFT
CONSTRUCTORS, LTD.:—

SIR ROBERT MCLEAN (Chairman).

MR. H. BURROUGHS, F.R.Ae.S. (Deputy Chairman).

MR. C. R. FAIREY, M.B.E., F.R.Ae.S. (Member of Council).

MR. F. HANDLEY PAGE, C.B.E., F.R.Ae.S. (Member of
Council).

MR. J. D. NORTH, F.R.Ae.S., M.I.Ae.S. (Member of Council).

LT. COL. L. F. R. FELL, D.S.O., O.B.E., F.R.Ae.S., M.I.MECH.E.
(Member of Council).

MR. C. V. ALLEN (Director).

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LONDON

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1936

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

SEVENTEENTH DAY

Friday, 7th February, 1936

PRESENT:

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A. (*in the Chair*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir KENNETH LEE, LL.D.

Sir THOMAS ALLEN.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Sir ROBERT McLEAN;

Mr. H. BURROUGHS, F.R.Ae.S.;

Mr. CHARLES RICHARD FAIREY, M.B.E., F.R.Ae.S.;

Mr. FREDERICK HANDLEY PAGE, C.B.E., F.R.Ae.S.;

Mr. JOHN DUDLEY NORTH, F.R.Ae.S., M.I.Ae.E.;

LIEUT.-COLONEL LOUIS FREDERICK RUDSTON FELL, D.S.O., O.B.E., F.R.Ae.S., M.I.Mech.E.;

Mr. CHARLES VALENTINE ALLEN;

representing THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS, LTD.,

called and examined.

3600. *Professor Gutteridge*: I have been asked by the Chairman to express his regret that he has been detained, and to apologise for his absence. I think, Sir Robert McLean, the Society of British Aircraft Constructors, Ltd. is a representative body of the aircraft industry?

Sir Robert McLean: That is so.

3601. *Professor Gutteridge*: And you are accompanied, I think, by a representative selection of people interested in the industry?

Sir Robert McLean: Yes.

3602. *Professor Gutteridge*: Perhaps I might refer to them: Mr. Burroughs, who is a director of the Gloster Aircraft Company; Mr. Fairey, who is past president of the Royal Aeronautical Society and chairman and managing-director of the Fairey Aviation Company; Mr. Handley Page, who is managing-director of Handley Page, Ltd; Mr.

North, who is managing-director of Boulton-Paul Aircraft, Ltd., and consulting engineer to the Director of Airship Construction, and a member of the Aerodynamic and Material and Chemistry Sub-Committees of the Aeronautical Research Committee; Lieut.-Colonel Fell, who is a director of Armstrong Siddeley Motors, Ltd.; and the director of the Society, Mr. Allen. Is that correct?

Sir Robert McLean: Yes.

3603. *Professor Gutteridge*: I think you have put in a written statement, and attached to that statement is an annex which indicates the membership of the Society, and another annex which shows who the members of the Council are?

Sir Robert McLean: That is so.

3604. *Professor Gutteridge*: Will one of you read the statement?

Mr. Allen read the following statement:—

MEMORANDUM BY THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS, LTD.

I.

The Society of British Aircraft Constructors was incorporated, as a company limited by guarantee, in the early part of 1916. It is the representative trade body of the industry, and is submitting this memorandum in that capacity.

There is given in Annex A* a list of the members of the society as at the date of the submission of this memorandum, and it will be seen from this that there are three classes of membership, (i) ordinary members, (ii) associate constructors, and (iii) associate members. Ordinary members and associate constructors must be constructors of complete aircraft or complete engines or both, while associate members are suppliers of parts, materials, fittings and so on, or are engaged in some business which is ancillary to the aircraft industry.

Under the society's original constitution there were only two classes of members, (i) ordinary members and (ii) associate members. Recently it was felt desirable to make provision for the newer companies engaged in aircraft or aircraft engine construction, and accordingly the class of associate constructor was created.

The ordinary members and associate constructors include every responsible British manufacturer of aircraft and aircraft engines; and the society is recognised by the Air Ministry as being fully representative of the industry.

Under its Memorandum of Association, the society has power to act generally as a representative body. It acts as an executive and consultative body but solely in such matters of principle as are the general concern of the industry. It does not intervene in the interests of individual members, nor does it deal with questions of prices or competition between individual members.

The Articles of Association of the society contain the provisions which are usual in the case of trade organisations; e.g., provisions as to election of members, the formation of sections of the society, the constitution of a council to control the affairs of the society and similar matters. Management of the affairs of the society is in the hands of a council consisting of individuals representing the ordinary members; and a list of the present members of the council is given in Annex B*. In addition to the council there is a technical committee to which

* See Appendix I, p. 531.

* See Appendix I, p. 533.

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[Continued.]

are referred all technical matters, e.g., standardisation, design and research questions. This technical committee is divided into an aircraft section and an engine section. There is also a pilots' technical committee, subsidiary to the technical committee, which deals with technical questions from the standpoint of the pilot. *Ad hoc* sub-committees of the council and of the technical committee are formed as and when required.

In addition, the society has set up a civil air transport section to bring together the companies engaged in air transport for the discussion of problems of mutual interest. The society also set up an aerodrome owners' section.

II.

The society came into existence during the War at a time of great and increasing activity in aircraft and aircraft engine construction and when the need of an organised representative body was felt. In point of fact, the incorporation of the society slightly antedated the formation of the first Air Board, followed, at the end of 1917, by the creation of the Air Council under the Air Force (Constitution) Act, 1917.

From the formation of the society until the termination of the War the activities of the society were naturally largely concerned with War production questions. It is perhaps sufficient to say on this subject that, towards the end of the War, the then Secretary of State for Air, the Rt. Hon. Lord Weir, was good enough to communicate¹ with the society referring to the enterprise and courage of the industry and saying that the unity of the industry as embodied in the society had been of the greatest value to the Department of Aircraft Production; while the late Sir Arthur Duckham, then Director General of Aircraft Production, stated² that he had had a long experience of the Ministry of Munitions, having been in it since its commencement, and that in no other department had assistance been given comparable to that given by manufacturers to the Aircraft Production Department; and he expressed his appreciation of the work done by the society in assisting the Government to obtain so satisfactory an output of aircraft.

At the end of the War the membership of the society included many companies who came into aircraft and engine production solely for the duration and for the purposes of the War. These companies reverted to their pre-War activities, leaving some 35 ordinary members whose interests were wholly or largely in the aircraft industry; but of these about one half ceased to be members of the society during the next two or three years, either going out of business altogether or taking up some other form of work.

III.

The society desires to lay before the Commission information as to the history of the industry so that the Commission may be in possession of the full facts; but this seems a convenient point at which to make certain preliminary observations.

The question of what the size of the Royal Air Force should be is a matter of high policy and is the responsibility of the Government of the day, in whose decisions the industry is bound to acquiesce. The society may, however, legitimately submit observations on the question as to how the supply requirements of the Government, whatever those requirements may be, can best be met.

It is imperative that the Royal Air Force should be equipped with the best possible aircraft and engines for the various purposes of the Force. That the industry has fulfilled the obligation of designing and supplying efficient machines is manifest; and experience has shown that the requirements of the Royal Air Force can only be effectively and efficiently met by private enterprise, free from what

the author of the official history, *War in the Air*, has referred to as "the paralysing effect of official control."³

The society is not clear whether, under the Terms of Reference to the Royal Commission, it has to be assumed that the objections to the private manufacture of arms referred to in evidence⁴ already submitted to the Commission are to be taken as proved, or whether they are to be considered as objections which have been stated and remain to be proved, so far as they are capable of proof and do not necessarily remain matters of opinion. Whatever the intention may be, the society declares that the general allegations made are without foundation, while such specific criticisms and complaints as have been formulated are based on inaccurate or incomplete information.

IV.

The society proposes in this section to give the Commission some information about the pre-War position, prefaced with the observation that it is apt to be overlooked that private enterprise had made considerable progress in aircraft design and construction before the War. The official history, *War in the Air*, to which reference has already been made, says⁵ that it is not easy to assess the national debt to pioneer aircraft constructors. "A wealth of private enterprise lay ready to the hands of the Government" when the building of the air force began.⁶

In 1907, after the Wright Brothers had demonstrated the practicability of heavier-than-air machines, they offered their invention to the British Government. The offer was declined both by the Admiralty and the War Office, the Admiralty expressing the view that the invention would be "of no practical use to the Naval Service."⁷ It is right to add that, later on, after private enterprise had taken up aircraft design and construction, the Admiralty did develop a close and helpful interest in aviation and its possibilities.

Before the War, British military aviation rested on a state organisation which had a threefold basis. Research was the province of the Advisory Committee for Aeronautics (later called the Aeronautical Research Committee). Design and manufacture was the care of the Royal Aircraft Factory, with recourse to the industry for some manufacture of Government designed machines. Finally the Air Battalion of the Royal Engineers was envisaged as the user and operator of the aircraft thus produced.

The Advisory Committee for Aeronautics was appointed by the then Prime Minister in 1909⁸ to superintend aeronautical investigations at the National Physical Laboratory and to advise on scientific problems arising in connection with the work of the Admiralty and War Office in aerial construction and navigation. The committee comprised eminent scientists and representatives of the navy and the army. The terms of reference to, and the composition of, the committee have been changed from time to time but these changes do not call for special note.

The Royal Aircraft Factory had its origin in a Balloon Factory established in 1894.⁹ The transition from balloon manufacture to aeroplanes began with the creation in 1911 of the Air Battalion of the Royal Engineers, consisting of a Headquarters Unit, No. 1

³ *War in the Air*, Vol. I, p. 162.

⁴ *Minutes of Evidence*, 10th Day, p. 258.

⁵ *War in the Air*, Vol. I, p. 121.

⁶ *Ibid.*, p. 143.

⁷ Letter dated 7th March, 1907, from the Admiralty, set out on p. 287 of *Telegraphy, Aeronautics and the War*, by Charles Bright, F.R.S.E.

⁸ Statements in House of Commons on 5th May, 1909—20th May, 1909.

⁹ *War in the Air*, Vol. I, p. 152.

¹ Letter from Lord Weir dated 14th October, 1918.

² Letter from Sir Arthur Duckham dated 16th October, 1918.

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[Continued.]

Company (Airships and Balloons) and No. 2 Company (Aeroplanes).¹⁰ This was the beginning of the Air Force such as we know it to-day.

When the Air Battalion was formed the War Office was in possession of not more than six aeroplanes.¹¹ These were of various foreign types, and not all were in a fit state to fly. The flying personnel of the Aeroplane Company consisted at the outset of two officers who had learned to fly at their own expense,¹² while at about the same time the Admiralty gave permission for four naval officers to learn to fly, and they were taught to fly on British machines lent by a private owner.¹³

In the year 1936 pure research is still a responsibility of the Aeronautical Research Committee but design and manufacture of aircraft and engines have passed from the Royal Aircraft Factory to the industry. State design, which first broke down in engines, failed signally to rise to the occasion and to keep pace with designs produced by private enterprise. It may be added that, except in Soviet Russia, every one of the great nations engaged in the design and production of aircraft and engines places reliance on private enterprise.

V.

By the end of 1911 the Government considered that the future development of military flying could best be served by the formation of a separate service and in 1912 the Royal Flying Corps came into being.¹⁴ This consisted of a Military Wing, a Naval Wing, and a Central Flying School common to both wings.

As regards equipment, the policy of the War Office was, as explained above, to concentrate design work in the hands of the Royal Aircraft Factory; and the officially designed B.E. biplane was adopted by the War Office soon after its appearance. A number of British aircraft constructors were given small orders for the construction of this type of aircraft.

Opposed to this policy was that of the Air Department of the Admiralty. The Naval authorities encouraged British constructors, so far as they could with the funds allowed, by buying and trying out examples of various promising types of British aircraft produced by private enterprise. The first machine to alight on water, the first machine to fly off the deck of a warship under way, the first successful seaplane, the first machine with folding wings, the first machine to carry a torpedo and the first machine to carry a 2-pounder gun—all these were produced by private enterprise before the War. Other privately designed aeroplanes established a British Duration Record, a British Height Record with one and two passengers, a World Height Record with three passengers and a World Duration Record with seven and nine passengers. In 1913 a British flying-boat won the Mortimer Singer prize for the first amphibian to make successive landings and alightings on land and water respectively, and in 1914 a British seaplane won the second contest for the Schneider Trophy at Monaco in the face of what was considered to be most formidable French competition. This success created a very great impression abroad although it attracted little attention in this country.

As one example of the experimental work encouraged by the Admiralty, reference is made to the Report on Experiments in 1911 on an Avro "hydro-aeroplane"—with notes and suggestions for further experiments—which is printed as Appendix III to the book *Airmen or Noahs* by Rear-Admiral Murray F. Sueter, C.B., R.N. M.P., who at the time was Director of Air Department of the Admiralty.

The foregoing is no more than the briefest summary of the activities of some of the companies in the design of aircraft, but it evidences the boldness of private enterprise as opposed to, let us say, the caution of the War Office, and indicates the resources in design which were even then in the service of the industry.

At August, 1914, there were twelve aircraft firms and the following summary may be of interest:—

AIRCRAFT MANUFACTURING CO., LTD.—This was founded in 1912 and acquired the British rights for Farman aeroplanes. Later, a factory was established at Hendon and in 1914 the company obtained the services of Captain Geoffrey de Havilland as chief designer, thus laying the foundations for the production of the well-known series of D.H. aircraft.

SIR W. G. ARMSTRONG WHITWORTH & CO., LTD.—This company opened an aircraft department in 1913 and manufactured a small quantity of B.E. biplanes for the War Office.

A. V. ROE & CO., LTD.—Founded in 1910 by A. V. Roe, this company produced the prototype of the machine which afterwards served as the standard training aeroplane. Several Avro biplanes of various types were sold to the Admiralty.

BLACKBURN AEROPLANE COMPANY, LTD.—This was founded by Mr. Robert Blackburn who built his first aeroplane in 1910. Various types were produced which did not interest the authorities.

BRITISH AND COLONIAL AEROPLANE CO., LTD.—Founded in 1910 this company organised flying schools at Larkhill and Brooklands and designed a number of military aeroplanes; but the only orders placed with the company by the War Office were for B.E.2 biplanes. It supplied several experimental aeroplanes to the Admiralty and produced a single-seat biplane known as the "Bullet" which was later bought in small quantities.

GRAHAME WHITE AVIATION CO., LTD.—Founded by Mr. Claude Grahame White in 1911, and in 1913 acquired a licence for the Morane-Saulnier monoplane.

HEWLETT AND BLONDEAU, LTD.—Founded in 1913, it built B.E. aeroplanes for the War Office.

MARTINSYDE, LTD.—This company built its first aeroplane in 1908, and afterwards built successful monoplanes with notable performance which failed to find approval for service use.

HANDLEY PAGE, LTD.—This company was founded in 1908 and devoted early experiments to development of inherently stable aeroplanes, both biplane and monoplane. Its only official recognition was the placing of small orders for B.E.2 biplanes by the War Office.

SHORT BROTHERS, LTD.—This company was founded for the construction of spherical balloons in 1898. In 1908 acquired the rights for the Wright patents and in 1911 produced a successful British seaplane. With Admiralty encouragement conducted valuable experiments in the development of naval aircraft.

SOPWITH AVIATION COMPANY, LTD.—Founded in 1911, it produced a notable series of aeroplanes which put up various records, and it supplied several experimental types of aircraft to the Admiralty.

S. E. SAUNDERS, LTD.—This firm of boat-builders built hulls for Sopwith flying-boat and amphibious machines and received a small order from War Office for B.E. biplanes.

J. SAMUEL WHITE AND SONS, LTD.—This ship-building firm began the design and construction of seaplanes in 1912.

VICKERS, LTD.—The aviation department of this company was founded in 1911 with the acquisition of the British rights for a French aeroplane. It built all-steel aeroplanes which

¹⁰ *Ibid.*, p. 142.¹¹ *Ibid.*, pp. 193-195.¹² *Ibid.*, p. 188.¹³ *Ibid.*, p. 124.¹⁴ *Ibid.*, p. 198, *et seq.*

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[Continued.]

failed to interest the authorities; but it received small orders for B.E.2 machines from the War Office.

So far, nothing has been said as to the pre-War position of aircraft engine design. The official policy, which did little to foster the aircraft designer, had most serious effects on the development of engines. Design and development of aircraft engines are very costly matters and it is hardly a matter for surprise that there was unwillingness to embark on expensive programmes of design which were likely—indeed inevitably so in view of the limited orders which would be forthcoming—to be a source of loss, particularly when it was known that the Royal Aircraft Factory was engaged in designing its own engine. Some further observations on the subject of engines will be found later in the section dealing with War-time production.

VI.

This, then, was the position in August, 1914, with the result that four Squadrons of the Royal Flying Corps took the field with 66 aeroplanes, almost wholly of French design or designed by the Royal Aircraft Factory and all fitted with engines of foreign design and make. It has been stated that 113 aeroplanes were left at home, though with the exception of about 20, nearly the whole of these were worn out or unserviceable.¹⁵

Until orders placed after the outbreak of the War began to materialise the flying services had to depend as best they could on existing equipment, augmented by the deliveries of Government-designed machines ordered before the War, and on whatever aeroplanes could be obtained from French constructors. Considerable reliance had to be placed on French sources of supply, particularly in engines, on which the British services relied solely for the first six months of the War.

The British aircraft industry accepted orders up to its maximum capacity and set about expanding works. Gradually the motor-car industry utilised its available resources to assist, turning its body-building departments on to fuselage and wing construction, followed by the coach-building trade, furniture makers, and scores of other firms whose manufacturing facilities lent themselves to the production of aeroplane components and accessories.

While the Royal Flying Corps was forced to depend on only a fitful supply of aircraft during the initial six months of the War, new designs of aircraft were being prepared by the British industry, but before the efforts being made could become effective, private enterprise in the service of the German Air Force produced the Fokker monoplane. This machine in the hands of some of Germany's most able pilots gained a material and moral ascendancy over the Royal Flying Corps in the field, and the B.E.2c, which was bearing the brunt of work of the Royal Flying Corps, suffered heavily. When the Fokker first appeared there were sixteen R.F.C. squadrons in France, of which twelve were equipped with the B.E.2c.¹⁶

Urgent demands were made by the R.F.C. in the field for the speeding up of the production of fighting aeroplanes and for efficient fighters, and early in 1916 new types were received in France which could counter the Fokker monoplane. The R.F.C. had meanwhile to pay a heavy price in the endeavour, with inadequate equipment, to carry out the work of helping the Army. Casualties mounted high and important Army reconnaissances and bombing raids often could not be completed owing to the shooting down of British aircraft. R.F.C. Headquarters laid down a rule that a machine proceeding on reconnaissance had to be escorted by at least three other machines; all had to

fly in close formation and the reconnaissance was not to be continued if any of the machines became detached. This had the effect of reducing the effective strength of the R.F.C. as although the variety of work required to be done for the Army did not diminish, many more aeroplanes had to be set aside for certain missions to the exclusion of others.

Meanwhile, the Admiralty had continued to pursue its policy of encouraging private enterprise. It was in possession of satisfactory types of aircraft (easier and cheaper to build than those of Government design) and was urging the development of engines. It was asked many times¹⁷ by the War Office to hand over machines to the Royal Flying Corps and on occasion did so,¹⁸ as, for instance, in the latter part of 1916 when a squadron of machines—all of private design—were made available by the Admiralty. This competition between the two services, coupled with the casualties in our Air Force and the effects of the early air raids on England, gave rise to public agitation urging that some co-ordination should be introduced. An Air Committee under the Chairmanship of Lord Derby¹⁹ was set up to prevent competition between the Services and to increase the output of machines by co-ordination of design and the placing of orders. This Committee had no executive powers and failed for lack of them. Its failure was followed by the appointment of a Committee known as the Burbidge Committee to investigate the position with regard to the Royal Aircraft Factory. The Committee reported²⁰ on the 12th May, 1916, setting out its conclusions, including the following:—

(1) Such an experimental factory should be in existence . . . the factory should be reorganised.

(2) The War Office standard of efficiency as regards finished products was met.

(3) The financial resources placed at the disposal of the Factory had been ample to allow experimental work to be expeditiously performed and should have placed useful data at the disposal of the War Office, Admiralty and private trade.

(4) The organisation in non-productive departments was liberal and on a scale unknown in private works.

(5) Improvements possible in parts of the organisation and management.

Next in historical order was the decision of the Government in May, 1916, to set up an Air Board under the Chairmanship of Lord Curzon.²¹ This Board had wider controlling powers but still no executive power and was unable to eliminate friction between the two fighting services.

A further Committee was set up under the chairmanship of Mr. Justice Bailhache to inquire into the administration and command of the Royal Flying Corps. This Committee in its report²² dealt with a variety of matters and in relation to the Royal Aircraft Factory it reported that its continued existence was essential but that it should not become a manufacturing establishment but should confine its activities to experiment and research, repairs and manufacture of spares.

Early in 1917 a new and second Air Board was set up under the presidency of Lord Cowdray, and the responsibility of placing the actual orders for aircraft and engines was transferred from the Admiralty and War Office to the Ministry of Munitions. This release of the industry from competition between the two services and from narrow restrictions contributed to the successful outcome of the War.

¹⁵ *ibid.*, Vol. I, p. 472.

¹⁶ *ibid.*, p. 477, and elsewhere.

¹⁷ See *The Beginnings of Organised Air Power* (J. M. Spaight), pp. 71-75.

¹⁸ *Cd.* 8191.

¹⁹ *The Beginnings of Organised Air Power*, p. 79.

²² *Cd.* 8194.

¹⁵ *War in the Air*, Vol. I, p. 293. Final Report on Royal Flying Corps. *Cd.* 8194, p. 4.

¹⁶ *ibid.*, Vol. III, p. 267.

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[Continued.]

The complete elimination of reliance on foreign engines was wholly due to private enterprise. The Royal Aircraft Factory which, as stated, had been engaged on engine design, gave it up and D. Napier & Co., Ltd., undertook development of an engine based on the work done by the factory. This model never came into extensive use and the company proceeded on its own lines. Rolls-Royce, Ltd., rejected the factory designs, which they considered were not on right lines. They produced highly successful engines of their own designs of which large numbers—many thousands—were built.

Other companies designed engines based to some extent on foreign designs because of the reliance placed by the Government on foreign engine design.

The total British production of aircraft and aircraft engines during the War was:—

Aircraft	...	...	...	55,093
Engines	...	...	...	41,034

(These figures may not be absolutely correct but they can be taken as sufficiently correct for present purposes.)

These figures indicate the productive powers and elasticity of British industry in time of emergency. Indeed, the head of the German Army Air Service has referred²³ to the utter impossibility of coping with the British programme of construction.

It should perhaps be added that those companies who were called in to construct aircraft and engines designed by others were given every possible help and assistance by the designing companies. All resources were pooled with a view to the greatest possible production.

VII.

Evidence has been given before the Commission in relation to the change-over from Government-designed machines to those designed by private enterprise.

Dr. Addison has informed the Commission²⁴ that the constant development and progress in type which was made during the War was not made by the private firms, but that a central body was set up on which were "representatives of the more alert private firms". Dr. Addison's recollection is at fault. There was no such central body. The machines produced by the designing firms were wholly designed by them.

Reference has been made in particular to the B.E. machine designed by the Royal Aircraft Factory; and it has been stated²⁵ that it showed a great advance in aeronautics and that it was a highly successful aeroplane.²⁶ The industry agrees that it showed an advance in aeronautics, but it did not prove to be a good service aircraft and its use was persevered with much too long. It was the machine which had to be used because owing to the policy of concentrating upon Government design, no other was readily available for the Royal Flying Corps. When aircraft firms were given a free hand and their designs adopted for quantity production the results soon became obvious.

One author²⁷ in dealing with B.E. aircraft says: "In the retrospect one can only regret that the machine was not roundly condemned. It might then have been scrapped and replaced by efficient machines earlier than it actually was and the tragedy of the Spring of 1917 when our outclassed B.E.'s were shot down wholesale might have been avoided".

VIII.

Dr. Addison further states²⁸ in his evidence that reliance on private manufacture proved to be insufficient and dangerous. There appears to the society to be some confusion here between production by the maker and the method of ordering by

the user. When the country did rely on private design and manufacture of aircraft and engines, the production was forthcoming.

It has further been stated²⁹ that up to January, 1917, the manufacture of aeroplanes was the business of a number of different departments—the War Office, the Admiralty and the Air Board. What has not been pointed out is that this confusion was not the creation of the manufacturers. It was not their fault that the competing Air Services were not co-ordinated at an earlier date. It may not be a question of fault but simply due to the fact that the necessity for a combined Air Force was not appreciated by the Government so soon as it might have been, while the difficulties of such a change must have been considerable. But nobody now suggests that the Air Ministry should be abolished and that there should be a reversion to the old system of divided control.

It is inevitable that reliance should be placed on private manufacture. In time of war the whole resources of the nation are required and it is inconceivable that in peace time the whole of the manufacturing organisations of the country could be organised on a war-time basis able to supply at a moment's notice the whole of the anticipated requirements. This would lead to the result that the whole of the manufacturing resources would be continually enmeshed in war-time production or waiting for it. The security of the nation in the War depended upon the manufacturing resources of the country, greatly expanded, of course, because the output demanded was overwhelmingly in excess of anything that had been visualised.

If what is meant is that under similar circumstances there would have to be some form of central body such as was brought into existence by the creation of the Ministry of Munitions, no one could possibly dissent, but it may be remarked that the backbone of the Ministry was the private industrialists who readily gave their services to co-ordinate and control production.

IX.

For the equipment of the Royal Air Force immediately after the War there was available a quantity of aeroplanes and engines in service, awaiting delivery or in production, only a very small proportion of which could be required. Certain new types of aircraft in production were abandoned for one reason or another while others were retained as current service types.

Consideration was then given to important technical problems which the stress of war had hindered. The war life of an aeroplane was a negligible quantity but in peace the life of an aeroplane is considerably extended, and the question of maintenance became of primary importance. Closely associated with this question was that of the availability of materials. The War had shown that for timber, the principal material used in the construction of aircraft, this country had to rely entirely on overseas supplies, and the enormous demands had resulted in the forced use of insufficiently seasoned wood.

The natural trend, therefore, was towards the use of a material which was not only easily obtainable in this country but one which was not susceptible to the vagaries of climate. Extensive research and experiment in the application of metal to aircraft construction was conducted, and in 1923, when the process of re-equipping the Royal Air Force had been inaugurated, the first all-metal machines were ordered in quantity by the Air Ministry.

The progress in the evolution of metal aircraft, however, was not rapid. The underlying problem was one of evolving methods of construction which, although cheap and economical to make in small quantities, would be suitable for mass production in

²³ German War in the Air. (Hoepfner.)

²⁴ *Minutes of Evidence*, 4th and 6th Days, p. 102.

²⁵ *Ibid.*, 7th and 8th Days, p. 137.

²⁶ *Ibid.*, p. 158.

²⁷ *The Beginnings of Organised Air Power*, p. 27.

²⁸ *Minutes of Evidence*, 4th and 6th Days, p. 79.

²⁹ *Ibid.*, p. 80.

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[Continued.]

an emergency. This involved complex problems and co-operation between research, experiment and production.

It is probably true to say that no particular form of metal construction can yet be said to be standardised because the design of the aeroplane structure and even the aeroplane itself is still in an indeterminate state. A principal requirement of an aeroplane of any type is lightness of structure weight to enable the biggest military or commercial load to be carried, and immense efforts have been directed towards the reduction of structure weight. Parallel with the development of the aeroplane, continual research has been made in the evolution of new materials which might contribute still further to the reduction of weight and increased life of the aeroplane. Apart from the development of suitable light alloys the production of special steels, particularly of the stainless type, has been eminently successful.

A full account of post-War progress in aircraft design—both of civil and military types—would require a very long technical section of this memorandum, and it is only practicable to refer to a few examples. The production of the Fairey "Fox" marked a great step forward in reduction of head resistance. The Handley Page "Hannibal" type brought a new conception of comfort and economy in air travel. The D.H. "Moth" showed the possibilities of the light, low-powered machine. The system of metal construction devised by the Hawker Co. (the successors to the Sopwith Co.) marked a substantial advance in constructional methods and did much to simplify the problems of maintenance. The Short types of metal flying boats embodied fundamental advances in the design of large marine aircraft while the Supermarine "Southampton" class set a new world standard of performance for military flying boats. These, as stated, are merely examples. Designers generally have done outstanding work, as is frankly recognised throughout the world. At one time this country held all three of the world's major flying records—speed, height and distance; and foreign governments found it necessary to subsidise their constructors heavily to beat those records. The only big post-War international air contests—the Schneider Trophy series and the England-Australia races—were won by British aircraft, powered by British engines.

There has been remarkable progress in the aircraft engine. The increased demand for performance has called for greater outputs without increase in weight and the weight/horsepower ratio has been enormously improved. Military efficiency has continually demanded greater reliability and reduced fuel consumption. Reliability has been so improved that the modern aero-engine is now able to run for periods in excess of 500 hours between overhauls whereas as recently as ten years ago this figure seldom exceeded 50 hours.

The development of supercharging and gearing has also been noteworthy and has contributed to the remarkable increase in performance at height, climb, take-off and weight-carrying capabilities of British military aircraft.

Further reference to the progress which has been achieved is made later under the heading of research and development.

The progress which has been made in the design both of aircraft and engines since the War could best be appreciated by a comparison of the performance of typical aeroplanes in service in the Royal Air Force in 1926 and 1936. In this period of only ten years the complete change-over from wood to metal was achieved and aircraft performance enormously increased.

X.

The Commission has been informed²⁰ that a new type of aircraft bearing the name of some aircraft firm which is submitted for testing by the Air

Force is by no means the product of private industry, but that it is the product in proportions of 50-50 of state research and private enterprise in design. The statement²¹ has also been made that the aeroplane is designed under close supervision from the Air Ministry to a fairly elaborate specification so that the industry is working with a great deal of state assistance and under very close supervision. These statements are incorrect.

Any aeroplane which is submitted for testing by the Royal Air Force is wholly the product of the designing firm. The Air Ministry issues to aircraft constructors a specification of requirements for a new type of aircraft. The duty of preparing this specification rests primarily on the Air Staff, which consults the technical department as to the possibility of the requirements being met in the then state of the art; and the specification of requirements issued to the industry states the problem in broad outlines. Particulars of desired performance are given, as also are particulars of the military load and of the equipment for which provision must be made. It is then left entirely to the constructor to design aircraft which will meet these requirements, subject to certain standard regulations as to airworthiness.

A constructor is given a limited time within which to produce his ideas of a machine to meet the requirements, and these ideas are submitted to the Air Ministry. Committees of the Air Ministry examine the information laid before them and decide with which constructor or constructors an order for a prototype shall be placed, assuming it is decided to place any order at all. In due course the machines are delivered, to be subjected at Royal Air Force experimental stations to vigorous and searching tests of all kinds, and on completion of these tests the machine considered to be the best is, in theory, adopted for production; but it does not at all follow that that machine will go into production. Aircraft design is still far from reaching stability. Rapid technical development leads to rapid changes in ideas and frequently machines have been considered to be obsolete for one reason or another at an early stage.

Now it has often happened that a constructor whose machine has not been adopted for production, or indeed whose preliminary ideas have not been accepted, has had the courage of his convictions and has built a machine which in his opinion, having regard to his knowledge and experience of service needs, is superior to any machine which complies strictly with the specification of requirements. Such an aircraft is known as a "private venture machine" and is designed in accordance with the designer's own specification. Over the last ten years one in every three private venture machines built has been adopted for production by the Royal Air Force, whereas in the case of prototypes built to comply with Air Ministry specifications of requirements only one in six has been accepted for production. This is not in the least any criticism of the Air Ministry. Indeed, it is rather the reverse, because it indicates that the Air Ministry is receptive to new ideas and is prepared to acknowledge the superiority of a private venture design over a design which complies with Air Ministry specification of requirements.

In the case of engines the designer sets his own standard and in effect prepares his own specification, which is submitted to the Air Ministry for consideration if the engine is of a type for which Government orders are sought. The initiative rests with the designer.

The explanation of the pre-eminence of the industry is that it retains its spirit of imagination and adventure. It knows what it can do and desires to provide the Royal Air Force with the best possible aircraft embodying the latest knowledge of the

²⁰ *Minutes of Evidence*, 7th and 8th Days, p. 150.

²¹ *ibid.*

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art. But for private venture machines the equipment of the Royal Air Force to-day would be much less efficient than it would have been if the equipment had been restricted to machines which simply met the requirements of the specifications and did not go beyond them.

Solution of the problems of design of military aircraft involves the incorporation of the lessons of experience in the field as well as provision for rapid production in emergency. The aircraft industry has proved again and again its ability to overcome the difficulties of one of the most complex problems in engineering.

Examples could be given of machines which, designed to fulfil the requirements of an Air Ministry specification have, by virtue of the advances in research and design made by constructors, actually given performances much more efficient than the requirements laid down by the Air Ministry. This is indicative of the great extent to which the ideas of a competitive industry can outrun those of a government department. It would probably be admitted by the higher ranks of the Royal Air Force that the revolution in performance which has been brought about by private enterprise has entirely altered the conception of air strategy and the mobility of the Air Force.

It will be understood that the problem which has to be faced by the constructor is not simply the production of a single prototype aircraft. At every stage of the design the question of cost and means of production has to be weighed. The contractor is thus faced with the interwoven problems of efficiency in design and possible rapid production in numbers, although in fact he is in the first instance constructing only one or two machines. These are problems so difficult that they demand the very highest qualities of engineering skill, combined with long experience.

The question of supervision needs explanation. It has been made clear that the constructor and the constructor alone is responsible for design. There had, however, grown up a system under which designs and the technical details thereof had to be sent to the Royal Aircraft Factory (now called the Royal Aircraft Establishment) for checking the calculations submitted by the designer, as evidence that the requirements of structural strength, etc., had been fulfilled. By some date after the War a large Airworthiness Department existed at the Royal Aircraft Establishment to do this work and this led to congestion and consequent intolerable delay. The rule was that no machine could be flown until the calculations had been passed by the Royal Aircraft Establishment. Meanwhile, the constructor proceeded with construction at his own risk, and in practice this "checking" work was frequently not completed until the machine was almost ready to be flown.

The position created by this centralised control showed signs of getting even worse; and the Air Ministry accordingly arranged with the industry that each constructor should install and maintain a department which would do all the work formerly done at the Royal Aircraft Establishment. This department was, and remains, under the control of the constructor and is maintained at his expense; but at each main constructor's works there was installed an Air Ministry "Resident Technical Officer" charged with the duty of seeing that the constructor was carrying out the system in accordance with the requirements laid down by the Air Ministry. This officer was authorised to make such checks from time to time as would enable him to determine whether the regulations were being observed.

This procedure led to a great deal more freedom, and avoided much of the unnecessary delay under the old procedure; but, even so, it was found that difficulties arose. It is sometimes necessary for minor

departures to be made from the original drawings in order, for example, to facilitate manufacture; and if the Resident Technical Officer considered that these departures should not be allowed or if he merely had some doubt on the point, he referred the matter to the Air Ministry for approval. (The extent to which this was done depended on the personality of the individual officer.) This involved reference to a number of officials at the Air Ministry with the result that considerable delays still occurred. The procedure has now been further modified with the result that the constructor may, if he wishes, ask advice from Air Ministry departments through the Resident Technical Officer, but the constructor is at liberty to accept or reject the advice so given and it is laid down that the constructor is the person responsible for the design and production of the machine and that any advice which may be given by the Air Ministry is without any acceptance of responsibility.

In the same way there has been considerable modification in the procedure of inspection. During the War all inspection work was done by the Aeronautical Inspection Department who, at the end of the War, had no less than 11,000 officers engaged in inspecting detailed parts as well as the complete article. It was recognised in course of time after the War that responsible constructors were fully competent to undertake inspection and in fact had inspection systems which duplicated the work. It was therefore arranged to throw the whole responsibility for inspection on the constructor, subject to an overriding check by an Air Ministry inspector for the purpose of ensuring that the standard of inspection is maintained. This scheme has effected great economy in the cost of inspection; and the principle has been extended to the manufacture of accessories and materials.

These procedures have largely abolished the expense and delays which arose and were increasing under the system of centralised control and have made for economy in production. The society believes that the Air Ministry would agree that the system has worked well and that constructors have faithfully co-operated for the purposes of ensuring the success of the system. Further decentralisation is being pursued, it being recognised that rapid production is essential and can only be achieved by decentralisation and throwing responsibility on the constructors.

XI.

It has also been stated²³ that it is quite obvious that the kernel of the industry ought to be the research department. The society must emphatically disagree with the proposition. The society must also contradict the statement²⁴ that the aircraft industry does little research.

Research is undertaken at (a) government establishments, and (b) constructors' works.

So far as concerns government establishments, research is undertaken by the National Physical Laboratory and by the Royal Aircraft Establishment. The programme of work to be done at the National Physical Laboratory is settled by the Aeronautical Research Committee (to which reference has already been made) after consultation with the Air Ministry, the Royal Aircraft Establishment and this society. The Aeronautical Research Committee superintends this work.

The programme of research work at the Royal Aircraft Establishment is settled by the Air Ministry, though the Aeronautical Research Committee may make recommendations regarding this programme.

There is considerable contact between the National Physical Laboratory, the Royal Aircraft Establishment and the industry. Regular meetings are held between the Aeronautical Research Committee and

²³ *Minutes of Evidence*, 7th and 8th Days, p. 142.

²⁴ *Ibid.*, p. 194.

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representatives of this society and the society is appreciative of the helpful attitude of the Committee. The programme of research drawn up by the Aeronautical Research Committee is discussed with the society's representatives who may make suggestions for other fields of research; and perusal of the minutes of these meetings would show that there is frank discussion. Information and ideas are submitted by the industry; the problems involved are discussed, and the position is explored with a view to determining the best lines of investigation. Not a few of the publications which have been issued owe a debt to suggestions and advice from the aircraft industry.

There is, both at the National Physical Laboratory and at the Royal Aircraft Establishment, apparatus of a kind which could not be economically provided by an individual constructor because no constructor requires to keep such apparatus in continuous employment. It was at one time proposed to set up a British Aircraft Research Association by arrangement with the Department of Scientific and Industrial Research but in view of the fact that such an association could not embrace the whole of the work which has to be done at the National Physical Laboratory and the Royal Aircraft Establishment—the research work there covering armament and other problems outside the scope of the work of the industry—it was felt to be neither advisable nor economical to duplicate the organisation. Where, however, a constructor can usefully employ research apparatus he has installed it, and constructors have wind tunnels, tanks, mechanical and chemical laboratories adequately staffed and in constant use.

There is an enormous difference between, on the one hand, research and development work done at research establishments, the correctness of the results of which is a matter of argument or opinion, and, on the other hand, research and development work as embodied in design of actual aeroplanes, when its applicability to the design in which it is embodied is proved or otherwise by the tests on the aircraft. The problem of aircraft design is not solved by logical deduction from exact data. The data do not exist, while the logical processes are not available, principally because the number of variables is too great. Aircraft design is an art and not a science and the point is soon reached when the resources of science break down and the creative genius of the designer in the exercise of his art becomes paramount. It is a creative art in the sense that the designer must be able to visualise the whole conception of the aircraft which he is designing—performance, outward form and internal structure. Fundamental research work is a good general guide but there is a gulf between the published data at the disposal of the designer and the finished aircraft. If it were not for the large amount of *ad hoc* experimental work done by constructors the gulf between published research and practical design would not be bridged.

Design units that are too large or hampered by restrictions are undesirable. Flexibility is necessary for rapidly changing conditions; and past experience which led to the system under which constructors are approved for design, as set out above, shows that the necessary degree of flexibility cannot be found in a government department where the necessity for avoiding individual responsibility results in a multitude of restrictions, regulations and instructions which is a poor substitute for the judgment of a competent engineer in any particular set of circumstances.

The problem of aircraft construction, using the word in the sense in which it refers to the design and building of what is known as the "airframe," is one which lies apart altogether from considerations of technical information such as may be supplied by research departments either of the Government or of individual firms. Advances in design depend on the highest development of technical skill and

such advances can only be brought about by the close co-operation of a board of directors who, in the belief that in the end the experiment may be justified and enterprise rewarded, are prepared to back daring and sometimes hazardous schemes which may or may not show an adequate return for the money expended, and to support, through barren years of development and research, men who may fail. All this calls for team work and freedom from restrictions.

It has been said that designers work on the basis of an immense amount of research and experimental work conducted by the Air Ministry and the Department of Scientific and Industrial Research and the suggestion is made as though no other material were available. In truth publications comparable with those issued by the Aeronautical Research Committee are obtainable from reports issued in other countries. Some of these are of high value and cover new ground; and designers find it necessary to maintain a close survey of these foreign publications. The published reports in this and other countries form a common pool of knowledge available to designers in all countries. Much of the work covered by these reports is of a fundamental scientific character and a large amount of further work by the industry is necessary to make it applicable to purposes of design and construction.

A very large amount of scientific and aerodynamic research has been and is done by the aircraft industry. The development of the Handley Page slotted wing, the Frise aileron, the de Havilland differential aileron control, and the retractable undercarriage—to mention a few important developments only—was due to research by firms in the industry. So was the general theory and technique of metal construction and much experimental work relating to the problem of aerodynamic interference. Recently, announcements have appeared in the press on the subject of "geodetic" construction, a system of aircraft building developed entirely at the cost and initiative of an aircraft manufacturer which marks an important stage in reduction of structure weight. In view of the official desire for secrecy the society is not at liberty to add to the information already published on this subject.

Frequently the industry has pursued research in spite of official indifference, and even discouragement. Since specific reference has been made²⁴ to the slotted wing invention it should be explained that automatic operation of the wing slot was achieved by the inventor after official research into the same problem had failed.

Much research work has also been done by engine designers, and the work is going on continuously. More than one of them has more single-cylinder units running than the Royal Aircraft Establishment, and it is on single-cylinder units that aero engine research work is really effected. The research programme covers an extensive programme embracing supercharger development, induction systems, exhaust turbo blower drive, exhaust systems, etc. A specialised installation section deals with research work on engine cowlings and mountings and problems connected with reduction of drag in relation to radiators for both coolant and oil services.

One company has developed air-cooled sleeve valve engines, which would never have been done had the matter depended on official action as the conclusion drawn from official research work indicated that the air-cooled sleeve valve cylinder was not a practical possibility.

Development and research work on high temperature cooling has been done solely by the industry and so has the development of petrol injection.

Another important item on which a great deal of research work has been done by the engine manufacturers is that of cylinder heads. Cylinder construction and technique and the use and manufacture

²⁴ Minutes of Evidence, 7th and 8th Days, p. 195.

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of lead bronze bearings on both air and liquid cooled engines have been effected and produced as the result of research and development work by the private companies.

Engines as at present produced for high speed and high altitude flying have been intensively developed and are called upon to give high horse powers and maintain the same up to high altitudes to deal with present Air Force demands. The designer must also provide drives and various forms of control for variable pitch airscrew operation, supercharger, boost control, undercarriage pumps, vacuum pumps for blind flying, gun gear and a number of other operations. To achieve these results while maintaining a lower power/weight ratio has made it necessary for aircraft engine manufacturers to build up large and very costly design, research and experimental departments; and to maintain these departments in a state of efficiency, highly skilled and experienced personnel is essential.

Although there is the keenest commercial competition between manufacturers, arrangements are made for the mutual exchange of information on common technical problems through the medium of the society.

No reference has been made to instruments, cameras and other details of equipment—each of them important items. Here again, private enterprise has produced articles which need not fear comparison with those produced in other countries. It would, perhaps, be tedious to give a list of the many items of equipment, all of which have to be designed and incorporated in the complete machine; and there are, as it will be imagined, examples which it would not be in the public interest to explain. There is a whole world of scientific devices in the final equipment of aircraft for the Royal Air Force.

Standardisation of materials is effected through the medium of the British Standards Institution which body, at the suggestion of the society, set up an aircraft industry section. That section works through committees on which sit representatives of the Air Ministry and of the branches of the industry involved; and the final specifications are approved by the society's technical committee.

XII.

The export trade in military aircraft is conducted subject to general and particular principles laid down by the Ministry. This extends to the publication of details of new aircraft and engines.

For this purpose there are three categories or lists: The Secret List, the Part Publication List and the Open List. This covers not only the machine produced to meet an Air Ministry specification of requirements but also includes the "private venture" machines to which previous reference has been made.

Aircraft on the Secret List remain wholly secret. No information of any kind may be given about them; indeed, their existence may not be mentioned.

When a machine is transferred to the Part Publication List certain general information about it may be disclosed and preliminary negotiations entered into with prospective foreign purchasers; while machines on the Open List may, in principle, be sold abroad without restriction.

The decision as to the time when transfer from one list to another shall be made rests with the Air Ministry, though in general a machine is transferred from the Secret to the Part Publication List when it has made its first flight.

Beyond these regulations the Ministry exercises an overriding veto on foreign sales of military aircraft, including the grant of licences to manufacture abroad. This is in addition to the necessity for obtaining an export licence. It is assumed that the

Board of Trade would not grant an export licence without reference to the Air Ministry, but in practice the matter is referred to the Air Ministry by the aircraft constructor direct in the beginning, and the constructor acts in accordance with the wishes expressed by the Ministry.

No export licence is required in the case of a civil machine.

There is a clear line of demarcation between a civil machine and a military one, subject to the observation that any civil vehicle may be used for war purposes. Just as an omnibus or an ocean liner may be used for the transport of troops, so might a civil aircraft be used for that purpose or for the transport of supplies. It could not, however, be used without modification as an effective war machine except in the absence of adequate aerial defence. A civil aircraft could be so designed that it could be converted into an effective war machine, but that would involve modifications of a major structural character, though comparatively minor modifications might be sufficient to convert certain classes of civil machines into useful war machines for such purposes as reconnaissance and photography.

The total British export trade in 1934 of this industry was about 25 per cent. of the productive capacity then devoted to Air Ministry work. That represents an important margin of reserve productive capacity and in fact the margin of productive capacity is rather higher than that when all factors are taken into account. This trade is essential to an industry which is subject to considerable fluctuations in turnover. It provides employment and if this country lost the trade it would go elsewhere.

XIII.

Observations, which are difficult to follow, have been made in the evidence regarding civil air transport. Lord Marley says³⁵ "The British aircraft industry by a process of national ignorance is immensely behind the aircraft industry in other countries" though he goes on to say that that is "not entirely" the fault of the industry. Later on he says that in this country commercial flying has been allowed to drop "so far behind" because it has been left entirely to uncontrolled private enterprise; and that even in military machines this country has got equally behind. He adds³⁶ "If you want efficient aeroplanes and no corruption you have got to nationalise your industry".

With respect, the statement that this country has got "equally behind" in military machines hardly calls for reply. It is answered by the equipment of the Royal Air Force and by sales abroad in keen competition with other countries.

The association between corruption and efficiency is not understood; and therefore the society does not propose to deal with it. This part of the evidence, so far as regards civil aviation, seems to confuse construction with operation and to overlook the facts. So far from commercial flying having been left to uncontrolled private enterprise it has been the policy of the Government to place the operation of all main routes in Imperial Airways, Ltd., and the constructors can only supply such aircraft as the operator is prepared to buy. It is not much use to point to the air service between New York and Los Angeles as an example to be followed. Nothing can alter geographical facts; and there is no place in the world where any nation could establish an air service within its own territory comparable with the New York-Los Angeles route. Nor would any other nation be prepared to pay the vast sums paid to the United States Air Transport Companies.

³⁵ *Minutes of Evidence*, 7th and 8th Days p. 160

³⁶ *ibid.*, p. 165.

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The evidence of Lord Marley on this phase of the matter is to some extent rebutted by the evidence³⁷ of Mr. Noel Baker who refers to the international restrictions from which civil aviation suffers. That is true. When the Versailles Treaty was drafted a separate conference was held dealing with international aviation. This was attended by the then chairman of the society, who endeavoured to ensure that the restrictions on international flight should be modified so far as could be arranged and an International Commission on Air Navigation was set up from which considerable hopes were entertained. These hopes have not been justified for various reasons.

While the society believes that there will be still greater and greater development in civil air transport it considers that that development will only come by way of freedom from restrictions and by education and demonstration. If by internationalisation of air transport is meant international control the society must say that it cannot visualise the satisfactory working of a body under international or League of Nations control; and the same remarks apply to a national body subject to international control. What in the opinion of the society is required is freedom from the international restrictions which at present hamper air transport.

The progenitors of the present national transport company—Imperial Airways, Ltd.—were aircraft constructors, who, after the War, founded companies which started operations and ran services without subsidy on the routes London-Paris, London-Brussels and London-Amsterdam. They were Mr. Handley Page, who founded Handley Page Transport, Ltd., and Mr. G. Holt Thomas (founder of the Aircraft Manufacturing Co., Ltd.), whose transport company was Air Transport and Travel, Ltd. The system of subsidies introduced by the French Government made commercial competition economically impossible, and eventually, after a British Government committee had reported, the then existing companies were merged in Imperial Airways, Ltd. Pioneer work in Africa was done by another constructor, Mr. Blackburn.

The society would add that it does not approve of the system of subsidies. It would prefer a system of payment for services rendered, e.g. for carriage of mails.

Mr. McKinnon Wood has suggested³⁸ that nationalisation of production—apparently both of civil and military aircraft—should be worked into a scheme for the nationalisation of motor cars as public air transport should be worked into a unified national transport system. Since, however, Mr. McKinnon Wood does not deal with this scheme in his evidence, the society does not propose to comment on it.

The society has done a great deal of work in connection with civil aviation and has done whatever it could to develop it. The society has, as stated in the beginning of the memorandum, an air transport section which brings together the companies engaged in that business, and it formed an aerodrome owners section covering owners of private and municipal aerodromes.

XIV.

A memorandum of this kind cannot deal with every detail of the evidence already given before the Commission. For example, the statement³⁹ that the present indirect control of the industry by the Air Ministry is most ineffective and leads to inefficiency; and there are many other statements more or less to the same effect. The society submits that these statements—which are only matters of opinion unsupported by a shred of fact—are answered by the machines with which the Royal Air Force is equipped.

³⁷ Minutes of Evidence, 10th Day, p. 248.

³⁸ Aircraft Manufacture (published by New Fabian Research Bureau), p. 18.

³⁹ Minutes of Evidence, 7th and 8th Days, p. 214.

XV.

The Secretary of State for Air has recently stated⁴⁰ that the price paid for defence should be regarded as a premium paid for peace. The industry prefers to regard its efforts in that light, but however that may be—and it must be a matter of opinion—there is no half-way house between efficiency and inefficiency.

The history of the War shows that reliance on state design nearly led to disaster and that when state design and control broke down it was the farsightedness of private enterprise which saved the situation. Reversion to state design or control in an industry which is obliged by progress in design and knowledge to cope with increasingly complex problems would be a retrograde step and would gravely impair the air potentialities of the country.

XVI.

Although the Royal Air Force needs no testimonial from the society it would be ungracious not to record the admiration of the industry for the personnel of the Force which it is the privilege of the industry to equip.

XVII.

Certain allegations have been made with which the society must deal.

It is stated⁴¹ that the vested air armament interest has, by means of a long period campaign of propaganda, succeeded in leading the organised air interests of the country to believe that the policy of air disarmament is foolish, impracticable, and detrimental to British interests. This complaint is mainly based on the statement⁴² that the aircraft industry supports certain trade journals by advertising in them. The industry does advertise in these trade journals and is quite prepared to believe that without these advertisements the trade journals could not survive. In fact, however, the industry deprecates publication in a trade journal of matters which belong to the sphere of politics, a subject with which, in the opinion of the society, a trade journal should not deal, more particularly so in relation to international affairs. It is easy to say that the industry has the remedy in its own hands and could solve the problem by withholding advertising; but the solution is not so easy as that.

The society suggests that exaggerated importance is attached to this question of advertising. No public information is available as to the circulation of the journals in question, but it is thought that the circulation is not such as, in the opinion of the society, would materially influence general public opinion; while the suggestion that everybody, from the Air Minister downwards, would take his views on political matters from a trade journal cannot be accepted.

Mr. Noel Baker promised⁴³ to send to the Commission—if the Commission desired to see it—an advertisement which appeared in *The Aeroplane* of a machine "decorated with a swastika." He associated this with Germany, and complained that this advertisement appeared at a time when this country was still contesting the right of Germany to have an air force.

Examination of the actual advertisement would have shown that the word "Finland" appears right across the advertisement in one-inch capitals, and the advertisement records in bold lettering the sale of machines to Finland. The swastika used is the mark of the Finnish Air Force.

The next point is that there is "evidence of a financial connection between the private manufacturers and the Air League," this being based on a statement that Mr. Handley Page had offered £5,000 a year to the Air League for two years.⁴⁴

⁴⁰ The Times of 8th January, 1936.

⁴¹ Minutes of Evidence, 10th Day, p. 251.

⁴² Ibid., p. 234.

⁴³ Ibid.

⁴⁴ Ibid., p. 235.

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The position is that the Air League had arrived at a point when reorganisation was essential. A committee of the Air League, under the chairmanship of Lord Burnham, was set up to investigate the position, the then Director of Civil Aviation being a member of the committee. The League had neglected the possibilities of civil aviation, a subject in which Mr. Handley Page (who, as stated above, was one of the pioneers of civil air transport) was keenly interested. He was approached on the subject of the Air League's financial position and, believing that there was room for the development of air transport and that the Air League might be able to do useful work, he undertook to raise funds if the League were reorganised. This was a personal effort by Mr. Handley Page to help the Air League out of its difficulties, though the initiative, as stated above, did not come from him. The promise of financial support was coupled with an undertaking that there would be no interference with the policy of the Air League. The fact that this offer of financial assistance had been made was published in the press at the time.

The industry has not sought to interfere in any way with the business of the Air League or to dictate its policy; and, though examination of the issue of the Air League bulletin in July, 1926, shows that the statement quoted in the evidence⁴⁵ is correctly quoted, the society can only say that it has no knowledge of the matter. This statement appears to have escaped attention by the society at the time, otherwise the society would have inquired into it. The Air League should not be in the opinion of the society have dealt with the subject, and if it did so at the suggestion of any aircraft constructor, the aircraft constructor was equally wrong in asking the Air League to concern itself with something which is outside the province of the Air League. The statement in the Air League bulletin is assumed to be correct; the society has no knowledge of it.

A further statement has been made⁴⁶ that the aircraft manufacturers "actually persuaded the Federation of British Industries to make a protest against internationalisation." No evidence is adduced to show that aircraft manufacturers had anything to do with the action of the Federation, but it appears to be assumed that because something was done in connection with aviation, the industry was necessarily behind it, an assumption against which the society protests. The facts are that, although the society is a member of the Federation, the Federation dealt with this matter on its own responsibility and without reference to the society. The first the society knew of the letter referred to was when a copy was sent to the society after it had been despatched.

XVIII.

The society will be glad to deal with any points on which the Commission desire information.

3605. *Professor Gutteridge*: Thank you very much. I do not think you need read the annexes.⁴⁷ We are much obliged to you. I am afraid you have had rather an arduous task. As I understand it, the Society approaches this matter from the point of view that you can divide the history of aviation into three periods—the pre-War period, the War period, the post-War period. That is so, is it not, Sir Robert?

Sir Robert McLean: That is so.

3606. *Professor Gutteridge*: I do not think we need go into the pre-War period or the War period at the moment, but as regards what one may call the post-War period I think your answer is that competition between the various services has gone. That is right, is it not? The army and navy are no longer in competition?

⁴⁵ Minutes of Evidence, 10th Day, p. 236.

⁴⁶ Minutes of Evidence, 10th Day, p. 249.

* See Appendix 1, p. 531.

Sir Robert McLean: That is right.

3607. *Professor Gutteridge*: Another feature, I think, is that the life of a plane began to be a matter of moment. I should imagine that during the War people were not so much concerned with the life of a plane as with getting a plane made quickly, but after the War the question became of more moment. Finally, I think you will agree with me that there was no organised system at the beginning of the post-War period. The industry emerged from the War in a somewhat chaotic condition?

Sir Robert McLean: That is so.

3608. *Professor Gutteridge*: Even at the present time, I think, the industry is in a somewhat fluid state, is it not? You cannot say that it has settled down even at the present time?

Sir Robert McLean: I think it is fair to say that it has settled down since the War. A certain number of constructors have consistently and continuously produced and designed aircraft and there have not been many additions in recent years.

3609. *Professor Gutteridge*: What I have in mind is this: one peculiarity of your industry at the present time seems to be that it is almost entirely dependent on government orders, and not only on government orders but orders from one department of the government.

Sir Robert McLean: I would say largely dependent. I think the export trade amounts to about 25 per cent.

3610. *Professor Gutteridge*: I am not quite clear in my mind as to the ground upon which you base your belief that it is inevitable that reliance should be placed on private industry. Do you consider that competition is necessary in the interest of design and efficiency?

Sir Robert McLean: I regard technical competition as being probably the most important element in the development of aircraft at the present moment.

3611. *Professor Gutteridge*: Some doubt has been expressed as to whether there is effective competition. I notice you use the words "technical competition"; but using "competition" in its fullest sense some doubt has been expressed, as I say, as to whether there is any really effective competition. As I understand it, firms do not compete against one another in the ordinary way for the supply of aircraft for the government.*

Sir Robert McLean: We tender our aircraft to be tested by the government one against the other. In some cases on the choice of one particular aircraft by the government an order is placed with the firm; in other cases there is competitive tender, 3612. *Professor Gutteridge*: That is the single order system?

Sir Robert McLean: Yes. And, of course, there is the machinery of the government available for the checking of prices.

3613. *Professor Gutteridge*: There is a technical costing system?

Sir Robert McLean: There is a technical costing system. They make their own investigation.

3614. *Professor Gutteridge*: Who makes the investigation—an accountant from the Air Ministry?

Sir Robert McLean: An accountant with technical officers who know the machinery of aircraft production.

3615. *Professor Gutteridge*: They both do it?

Sir Robert McLean: Yes, and they do it from drawings of the machines. They take the drawings and check them with their own estimate.

3616. *Professor Gutteridge*: Does the same system of tendering apply as in the case of, say, a warship for which rival firms will put in tenders?

Sir Robert McLean: No. In most cases where the machine is chosen only the constructor and designer is asked to tender for that machine.

3617. *Professor Gutteridge*: That, I think, is the ground for the suggestion that the competition which exists in this case is not quite the ordinary kind of

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[Continued.]

competition. As I understand, the Aircraft Establishment, or the Air Ministry—I am not sure which—produces a specification.

Sir Robert McLean: The Air Ministry.

3618. *Professor Gutteridge:* And that specification is sent out to a number of firms.

Sir Robert McLean: It is sent out to a number of firms.

3619. *Professor Gutteridge:* Then each of them prepares a design in accordance with that specification, and then, I take it, the Air Ministry decide which design shall be adopted.

Sir Robert McLean: Yes. The price is tendered when the firm puts in the design.

3620. *Professor Gutteridge:* The man who puts in the design gets the order to make it.

Sir Robert McLean: Yes, and the Air Ministry choose from those designs the one which they wish built, and the tenderer of the design, if he is selected, gets the order.

3621. *Professor Gutteridge:* The price is not one to tender; it is to design. That is why you use the words "technical competition"?

Sir Robert McLean: Yes. There may be more than one selected from the same class. You may have three or four machines built in this way; all competing in the same type.

3622. *Professor Gutteridge:* You mean that supposing I put in a design and the Air Ministry thought that mine was a good design, I might be asked to produce a machine, and other manufacturers might be asked to do the same?

Sir Robert McLean: And there would be competition in price in that case.

Mr. Fairey: Yes, certainly.

3623. *Professor Gutteridge:* The man who offered the lowest price would have a good chance of getting it?

Mr. Fairey: Yes. Just as we compete in the open market, tendering for existing machines to the design of other firms.

3624. *Sir Thomas Allen:* Would there be payment to the firm who submitted the design?

Mr. Fairey: If it is manufactured by other firms, a small royalty is paid.

3625. *Sir Thomas Allen:* Do you mean that the other firms manufacturing from the accepted design would have to pay the royalty?

Mr. Fairey: No, the royalty is paid by the Air Ministry. Of the other firms, the one who put in a competitive tender for the lowest price would get it. That also applies to equipment. A man may design a gun mounting and the Ministry will take from us the design with or without royalty, and put it up to open competition.

3626. *Professor Gutteridge:* What about engines?

Mr. Fairey: No, it does not apply in that case.

Sir Robert McLean: There are cases where the same type of machine is made by two constructors, and then there is competition.

3627. *Professor Gutteridge:* It is the same idea, but there are variations?

Sir Robert McLean: In the design of two different firms.

3628. *Professor Gutteridge:* I should like to know how far there is competition in the case of commercial aircraft. Is there a field of competition in the ordinary sense or not?

Mr. Fairey: Do you mean in the small private aeroplanes?

3629. *Professor Gutteridge:* First of all, as I understand it, with regard to large commercial aircraft you have only one customer?

Mr. Fairey: Imperial Airways.

3630. *Professor Gutteridge:* There can be no competition there?

Mr. Fairey: The position is similar to that which obtains in regard to the Air Ministry.

3631. *Professor Gutteridge:* I am speaking of the light aeroplane.

Mr. Fairey: There is very intensive competition.

3632. *Professor Gutteridge:* Is there a firm in this country which confines itself entirely to the manufacture of commercial aircraft?

Mr. Fairey: Quite a number. De Havilland, chiefly—I should say not entirely. They manufacture a very great proportion of civil aircraft.

3633. *Professor Gutteridge:* I would like to ask you some questions about competition in the export trade. It has been suggested to us that you cannot have any competition in the export trade in the full sense because you are not allowed to export machines—at all events, military machines—unless they are at least five years out of date. Is that correct?

Mr. Fairey: No. The exact contrary is the case. Speaking for my own company, 50 to 90 per cent. of our machines are not out of date and are not machines used by the government.

3634. *Professor Gutteridge:* Are they military machines?

Mr. Fairey: They are military machines, entirely up to date, and they are exported with full knowledge and consent of the Air Ministry.

3635. *Professor Gutteridge:* You have to get the permission of the government in the form of a licence for that, do you not?

Mr. Fairey: Every single machine, every bit of equipment, is exported with the full knowledge and consent of the Air Ministry. We frequently have to refuse to take orders when we have practically negotiated them, because we are told not to do so by the Air Ministry. We are also told when we are welcome to take foreign orders by the Air Ministry.

3636. *Professor Gutteridge:* I do not know whether you have the information or not, but it has been suggested that in one instance our government allowed a machine to be exported which was better than the ones produced at home. Have you heard anything of that?

Mr. Fairey: Yes, but different countries present different problems of aerial defence. The aerial defence of Moscow, which is situated hundreds of miles from the frontier, would be very different from that of a city like Brussels or London. It calls for the use of different types of aircraft and interceptors. My company has designed machines to provide for defence of both those countries—Russia and Belgium.

3637. *Professor Gutteridge:* You have supplied both countries?

Mr. Fairey: We are supplying them now. Naturally, it is not the same machine as would be produced for the British government. We gain experience in designing aircraft for different requirements, but the whole thing is done with the full knowledge and consent of the British Air Ministry. No machines are exported without their consent.

3638. *Professor Gutteridge:* Are we to understand that the type of machine which is required for export may depend on geographical conditions?

Mr. Fairey: Very much so, in the case of military aircraft and civil aircraft.

3639. *Professor Gutteridge:* I do not know whether you can tell us anything about the export of aircraft to Germany. It has been said that a considerable number of aircraft have been exported to Germany by—I think the Bristol Company.

Mr. Fairey: I have never heard of it. A certain number of engines were exported.

Mr. Allen: The Bristol Company have never exported aircraft to Germany.

3640. *Professor Gutteridge:* But engines were exported?

Mr. Allen: Yes, by two companies—Rolls-Royce and Armstrong-Siddeley.

3641. *Professor Gutteridge:* Rolls-Royce and Armstrong-Siddeley both exported?

Mr. Allen: Yes, with the approval of the Air Ministry.

3642. *Dame Rachel Crowdy:* Is the Bristol Company represented on your delegation?

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[Continued.]

Mr. Allen: No, a representative of the Bristol Company is not here to-day.

3643. Professor Gutteridge: I think Armstrong-Siddeley is represented?

Mr. Allen: Yes.

3644. Professor Gutteridge: This leads me to the question of the licensing system. It is a matter of some importance to us. As I understand it, a licence is required for military aircraft?

Mr. Fairey: Yes. For any aircraft fitted with military equipment.

3645. Professor Gutteridge: What do you mean by "military equipment"?

Mr. Fairey: Bomb gear, gun mountings, bomb sights.

3646. Professor Gutteridge: It need not actually have the gun on it?

Mr. Fairey: No. The Ministry require a licence if we have the fixtures.

3647. Professor Gutteridge: You mean if you have the slots provided, that would make it a military plane?

Mr. Fairey: That would make it a military plane, or the sockets for gun mountings. The Ministry control extends very much farther than that exerted by the licence. All our firms are on an approved list and if we were to displease the Ministry we should be removed and we should lose the other 75 per cent. of our trade. The Ministry have informed us that they have authority under the Official Secrets and other Acts to put a complete embargo on export, and we make no move without their permission. We are in very close touch with the Ministry. We inform them when negotiations are reaching a point when we expect an order and we ask them whether we may proceed.

3648. Professor Gutteridge: Before you accept the order?

Mr. Fairey: Yes.

3649. Professor Gutteridge: That system applies before you accept orders from abroad?

Mr. Fairey: Yes.

3650. Professor Gutteridge: Does that apply purely to military aircraft?

Mr. Fairey: Purely to military aircraft. That is the system which applies, and no aircraft is exportable without permission.

3651. Professor Gutteridge: Commercial or otherwise?

Mr. Fairey: I will not say commercial.

3652. Professor Gutteridge: Would you approve a system which gave publicity to those orders which you receive from abroad?

Mr. Fairey: Not after we had negotiated the contract. It might not be advisable before that, for commercial reasons.

3653. Professor Gutteridge: Suppose you had an order from, let us say, Ruritania, for so many military aircraft: It has been suggested that you ought at once to notify the relevant government authority of the receipt of that order and that the fact that you have received the order should be made public in some way or other, so that other countries should know what had happened.

Mr. Fairey: In one respect we are in advance of that, because we inform the British government before the receipt of the order, but as to informing the world, that is another matter.

3654. Professor Gutteridge: It would not make customers shy of coming to you, as some of the armament people seem to think?

Mr. Fairey: It might, but there are so many things that make people shy of us—for instance, when we have to refuse an order because the Air Ministry say we should not take it. We have been refused permission to supply an old customer during a political emergency.

3655. Professor Gutteridge: Would it be possible for military aircraft to be flown out of this country without its coming to the knowledge of the authorities?

Mr. Fairey: Not at all. All our activities go on under the eyes of the authorities. We have resident inspectors, visiting officials, and so on. The whole of our activities are completely under the eye of the authorities. There is not a vestige of an aeroplane or aeroplane equipment that could be sold without their knowledge.

3656. Professor Gutteridge: We should like to have the views of you gentlemen as to how far it is possible to convert the commercial aircraft into military aircraft.

Mr. Fairey: It is a question of relationship. There is no relation between an intercepting fighter—

3657. Professor Gutteridge: Will you tell me what an intercepting fighter is?

Mr. Fairey: A type intended to climb rapidly and intercept a bombing plane. The design of a high speed long range bomber approximates in type to the long distance passenger machine, for example, the Martin and Douglas in America.

3658. Professor Gutteridge: Do I understand you to say that the long range bombing machine is approximate in type to the long distance passenger machine?

Mr. Fairey: Yes. It has already reached a point at which you only have to instal bomb gear and some form of defence.

3659. Professor Gutteridge: Can you do that without making a good many structural additions?

Mr. Fairey: The original barrier was the safety factor. That barrier has disappeared owing to modern conditions.

3660. Professor Gutteridge: When that point is reached I suppose a long range passenger machine could be converted safely and quickly into a bombing machine. Therefore, those people who say that commercial aircraft can be used for long range bombing are not far out?

Mr. Fairey: No, and if you abolish military aircraft, as has also been suggested, you make the civil machine a complete bomber.

3661. Professor Gutteridge: I suppose you mean that as long as you have fighting aircraft you have to escort these long range bombers?

Mr. Fairey: Or defend them.

3662. Professor Gutteridge: Therefore, if you do away with military aircraft, your long range passenger machine becomes a much greater potential danger than it is now?

Mr. Fairey: Very much.

3663. Professor Gutteridge: That is a point that I do not think has been put before us. May I ask one other question with regard to the matter of export. It has been said that the exports—as I understand it, of military machines—are mostly to smaller countries—apparently including China. I do not know whether that description is correct. You have given us one instance of a big country—Russia.

Mr. Fairey: The industry exports practically to all countries apart from those countries which produce aircraft themselves—the great powers. The industry does not export to France, Germany or Italy, and not to any considerable scale to Russia; only on a small scale to Russia. Generally speaking, the export is to the smaller non-producing countries.

3664. Professor Gutteridge: Would you say that the great bulk of the export is to the non-producing countries?

Mr. Fairey: Yes. Many of those smaller countries, I could mention half-a-dozen, have national aircraft factories and they buy British designs and reproduce them in those national factories. The national factories inevitably fall behind the private factories in design. They start off with these national factories very gaily, but owing to the natural defect of government factories they fall behind.

3665. Professor Gutteridge: You believe the government factories tend to stereotype things?

Mr. Fairey: Yes. The government service does not attract the right type of man for production. We want the alert type, and the government service is apt to attract the safety-first type of individual.

3666. *Professor Gutteridge:* That is a matter of opinion, is it not?

Mr. Fairey: Entirely.

3667. *Professor Gutteridge:* There is one other point on which I would like to question you. That is with regard to research. If I may take it quite broadly, your industry has been attacked on the ground that it does not do research, or at all events, enough research. I would like to hear what you gentlemen have to say about that? Who is the proper person to whom to address that question?

Mr. Fairey: Mr. Handley Page.

Mr. Handley Page: I think the industry in relation to its output probably does more research than other industries.

3668. *Professor Gutteridge:* In other words, you dispute that statement?

Mr. Handley Page: Very much so; because the ratio of new experimental work done in the industry in relation to production I should think is higher than that in almost any other industry.

3669. *Professor Gutteridge:* It has also been suggested that your design is too much spread about; that there are too many drawing offices. I think that was the way it was put to us.

Mr. Handley Page: I think that was Mr. McKinnon Wood's comment.

3670. *Professor Gutteridge:* He said that.

Mr. Handley Page: He said that, as a rule, designs were given out to four or five firms and that there would be an improvement if the number were cut down. At the same time, when dealing with a scheme of state design and manufacture he suggested that there should be competition between different state factories. I do not know how much one can reduce four or five and still maintain competition. It seemed to me that it was rather a contradiction in terms.

Professor Gutteridge: I follow your meaning.

3671. *Sir Philip Gibbs:* I think, having read the original statement, nobody can challenge the enormous service that has been rendered by private enterprise in aviation; but going back a little to the first part of your statement, would you agree that the situation which arose at the beginning of the War was entirely due to the fact that, up to that moment, the aircraft industry had been entirely devoted to the civil aviation side?

Mr. Fairey: Oh, no.

3672. *Sir Philip Gibbs:* You would not agree to that?

Mr. Fairey: Scarcely at all. The situation before the War was this, that whereas the War Office were concentrating all their design and production at Farnborough—or nearly all—we in the private industry owed our existence to the Admiralty. The Admiralty pursued the exactly opposite policy and were keeping us alive by issuing orders and buying aircraft as we produced them, and they usually added a small percentage to everything they required in regard to speed and load next time they gave an order. It was the Admiralty policy before the War which accounted for the existence of the bulk of the aircraft industry and that provided the very efficient machines that were made available to replace the B.E. when it was outclassed by the Fokker.

3673. *Sir Philip Gibbs:* According to my recollection, aviation was in a very experimental and elementary stage up to the year 1913, and therefore it was impossible to produce a very expert type of fighting machine at the beginning of the War. We had not the experience.

Mr. Fairey: We were making machines with machine-gun mountings. I was with Short Brothers in those days; we made and delivered machines carrying a 5-pounder gun of heavy calibre at Calshot. That was before the War. We had developed the

machine to a considerable extent at Short Brothers. 3674. *Sir Philip Gibbs:* Was there in existence in private industry any machine which could have countered the Fokker at that time?

Mr. Fairey: Yes, the Sopwith Tabloid.

3675. *Sir Philip Gibbs:* You think they were of equal fighting quality with the Fokker?

Mr. Fairey: They were not in production, but the designs were equal. There were one or two in existence which the Admiralty bought.

3676. *Sir Philip Gibbs:* With the old B.E. machines was it possible to produce by private industry a machine which could have countered the Fokker very rapidly?

Mr. Fairey: Yes. The Fokker was only a copy of the Morane. It was what they called a parasol monoplane.

3677. *Sir Philip Gibbs:* Would you agree that the differentiation between civil types of aircraft and military machines is becoming more intense, more divergent?

Mr. Fairey: It is a matter of opinion, but I suggest that certain classes of military aircraft and certain types of commercial machines are coming more together. That is an expression of my own opinion; others might not agree with me.

Mr. Handley Page: I think it very largely depends on whether the defensive property of an aeroplane lies in its speed or in its armament. If you consider that the war defence of a large aeroplane is to be its speed and its ability to get away, then the methods of defence, and the provision of means of defence, not required in commercial aircraft, are equally not required in military aircraft. 3678. *Sir Philip Gibbs:* I am not talking of bombers; I am talking of fighting machines.

Mr. Handley Page: I was dealing with the case where, as Mr. Fairey pointed out, the design of certain high speed machines in civil and military classes tends to become alike, where speed is the sole consideration. If, however, the sole reason for the machine is a matter of the provision of guns, and the essential basis of a commercial machine is comfort to the passenger, then there must be a differentiation between the two.

3679. *Sir Philip Gibbs:* May I ask one of you gentlemen what you think is the exact purpose and usefulness of the National Physical Laboratory and the Royal Aircraft Establishment with regard to private industry?

Mr. Handley Page: The National Physical Laboratory in relation to the aircraft industry serves very much the same purpose as it does in regard to other industries, or the purpose that university establishments serve to other industries; it provides all the material from which text books are drawn up, all the data, and so forth. The universities undertake, for example, in other spheres, research work as to the lubrication of bearings, and from that fundamental data is drawn up.

3680. *Sir Philip Gibbs:* Is it actually useful to you?

Mr. Handley Page: Very useful, and also the Aeronautical Research Committee is a means for fundamental research. Other countries have adopted the same procedure. There is a National Advisory Committee for aeronautics in America which I think has followed the model here, and the Germans have a similar organisation.

3681. *Sir Philip Gibbs:* And with regard to the Royal Aircraft Establishment, what does that do? Does it do anything with regard to research?

Mr. Handley Page: It does research in the same way: very useful research. In addition, it does research in regard to particular technical problems with which the fighting services are concerned. It does research into ballistics; it does research into bombs; research into sights and other things, similar to the way in which it is done, I expect, by the research department at Woolwich for the army, and at other establishments for the navy.

3682. *Sir Philip Gibbs:* I want to mention a fact which is perhaps well known to you, that those two

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establishments are paid for by the nation. The next question I want to ask you is this: Are you not receiving, in your private industry, which you conduct for profit motives apparently, a considerable amount of useful information from government sources?

Mr. Handley Page: I suppose we receive an enormous amount of accumulated wealth from a number of sources. I suppose, for example, a writer, if I might say so, draws on the accumulated literary experience from Shakespeare downwards.

3683. *Sir Philip Gibbs:* Yes; but, of course, the taxpayer does not pay any royalties to Shakespeare.

Mr. Handley Page: That may be true; but in the case of the aircraft industry we also draw a great deal on the research work that is done, for example, at Cambridge University, work that is done at London University, and elsewhere; private research work. We draw, similarly, on an enormous wealth of accumulated fundamental research from America, to which the taxpayer here at the moment does not make any contribution.

3684. *Sir Philip Gibbs:* He is escaping that.

Mr. Handley Page: And we draw from Japan, where they have a similar research organisation; but the information that you do not get is, of course, that which the designer has when he gets out the design of the machine.

3685. *Sir Philip Gibbs:* That I fully understand.

Mr. Fairey: I wonder if Mr. Handley Page will excuse me if I add that if we utilise the resources of the National Physical Laboratory for that purpose, we pay for them.

3686. *Sir Philip Gibbs:* Surely you do not pay for the pure science that is derived from the National Physical Laboratory?

Mr. Fairey: We would in so far as that is passed on to us through the medium of the people who are helping us. If we hire a tank for a day, we get Professor Baker's expert knowledge.

3687. *Sir Philip Gibbs:* I think that is a pretty cheap rate to pay for scientific knowledge. Hiring a tank for a day does not pay the government for keeping the National Physical Laboratory.

Mr. Fairey: There are two ways by which we can get it. The government can give us an order by which the work is done at the National Physical Laboratory, or at Farnborough. If we want the knowledge, we have to pay them for it in the same way that any electrical manufacturer can go to the National Physical Laboratory and have a condenser calibrated.

3688. *Professor Gutteridge:* A private individual can do that?

Mr. Fairey: Yes.

Mr. Handley Page: Anybody can have that done, on payment of the fee. In the aircraft industry it has become a matter of national prestige associated with national supremacy. The country has set up institutions for fundamental research, and the little that has been done in this country is a mere drop in the ocean compared with the enormous organisation which at the present time exists under the National Advisory Committee for Aeronautics in America. The National Advisory Committee for Aeronautics is directly responsible to the President. The German institution is an enormous one. The Japanese is another.

3689. *Professor Gutteridge:* Do you suggest that we are behindhand in research?

Mr. Handley Page: No. I am suggesting that the money allocated in this country for that purpose is not so great as that which is allocated abroad. I think the point is this. In connection with this whole sphere of aeronautics it has to be recognised that fundamental research is essential if the art is to progress. Every country is engaged on fundamental research of this character in this particular industry. In the more slowly progressing industries, where the rate of technical progress is slower, it has been left more to the universities to do this kind of work. It is essentially fundamental and basic

research. And, of course, there is another thing which influences the Treasury department of every country when agreeing to this expenditure, and that is this. Supposing you were to cut out altogether fundamental research, to do no fundamental research whatever, and were merely to ask every manufacturer supplying aeroplanes to supply them without that fundamental research being undertaken, presumably the overhead charges of the manufacturer would go up, because each one would set up his own research station, and the price to the client would have to be correspondingly increased.

3690. *Sir Philip Gibbs:* I strongly appreciate that; but I am driving to an argument which I would like you to counter; that is, that you are putting up a very steady defence for private industry against any form of national manufacture. Therefore I am trying to obtain an admission from you that you are receiving benefit from the state which you are using for private profit purposes.

Mr. Handley Page: I am not so sure about the benefit sometimes. For example, we own the patent of a thing called the slotted wing, and when the government do some of the detailed research work upon that in their own establishment and publish the results, as they do, to the whole world, we are not the only recipients. Every Tom, Dick and Harry abroad will get that information, and when they publish the details, the people who are far away, and whom we cannot get at, and who have no patent, have all those things supplied to them free of charge, whereas sometimes nobody in this country, not even the poor patentee, gets the benefit. So I am not sure that the Research Department is always of benefit to us.

Mr. Fairey: We pay for those researches when we use them for our own purposes; it is only when we use them for Air Ministry contracts that we get them free. We can hire a tank, or a tunnel, at so much a day. The scale of charges is high. I think it costs about £90 a day to hire a tank, and that, of course, is rather high.

3691. *Sir Philip Gibbs:* One definite case has been cited by witnesses whom we have heard. They stated that the Bristol engine was very largely dependent upon cylinders made at Farnborough. It seems to me, therefore, that the fee that might be paid by you does not really cover the services rendered by scientific invention?

Mr. Allen: Of course, you are not assuming that the statement is correct?

3692. *Sir Philip Gibbs:* I am not assuming that it is correct. I am asking you.

Mr. Allen: I have made the closest investigation with the Bristol Company and the statement is absolutely untrue. There is not a shred of fact to support it.

Colonel Fell: I was in charge of the department responsible at the Air Ministry at the time that work was done, and while certain experiments were carried out in which naturally the Bristol Company were interested, it would not be fair to state that those cylinders used in the Bristol engine bore any resemblance.

3693. *Sir Philip Gibbs:* You suggested that the world benefited considerably by this expansion of scientific knowledge and new invention. I rather want to put it to you that so far from benefiting by the increased efficiency of aircraft we may be creating a high state of danger for ourselves and rushing towards the destruction of civilisation. Undoubtedly the present Prime Minister is rather anxious about that. It is rather theoretical, but the question I want to ask you is this: Do you think it is dangerous to this country that patents for new designs should be sold to any country in the world which likes to buy them?

Mr. Handley Page: Do you mean by "patents" actual patents?

3694. *Sir Philip Gibbs:* For fighting machines and bombing aeroplanes.

Mr. Handley Page: Do you mean patents or designs?

3695. *Sir Philip Gibbs:* I mean patents for designs.

Mr. Handley Page: After all, you can only sell what exists in a country abroad. You can only sell to France, we will say, a patent which exists in France, and a patent is supposed completely to disclose all the means by which the invention is secured. Therefore, a country has within its own territory all the information fully disclosed in the government publications. If you mean that—

3696. *Sir Philip Gibbs:* Might I interrupt you for a second? Surely the knowledge of that design is not known until the patent is sold?

Mr. Handley Page: May I point out that you cannot have a patent to sell in a country until you have got the patent. The essential feature of the patent is that the patentee, in consideration of a monopoly for a term of years, discloses his invention.

3697. *Sir Philip Gibbs:* Yes.

Mr. Handley Page: The patent is granted in a foreign country, and not until it is granted is the patentee in a position to deal with it. The state in whose territory the patent is granted has the whole of the information disclosed with the patent, and if the person who grants the monopoly says at the same time "I am going to have the invention worked in this country under my own aegis whether you like it or not", it seems to me that the only thing the patentee can do is to obtain the maximum possible remuneration for the patent. The state in every country in the world has the right, with or without agreement with the inventor, to use any patent rights.

3698. *Professor Gutteridge:* It comes under the international system of patents?

Mr. Handley Page: It is the system everywhere.

Mr. Fairey: We cannot take out a patent without permission of the Air Ministry. Directly we file it it comes under the eye of that department. We cannot get foreign patents without permission of the Air Ministry. It is just the same as exporting aircraft.

Mr. Handley Page: Take our slotted wing patent which we have in every country in the world. When those patents are granted in a country like France, for instance, there is full disclosure of all the means by which the invention is secured. The French government, the French technical authorities, the French constructors are able to get from this country all the research results of the Aeronautical Research Committee which are published by the Stationery Office at 6d., 1s., or 1s. 6d., according to the size of the document. Therefore, they are in possession of everything. I think it would be foolish from a financial point of view not to endeavour to extract, perhaps with great difficulty, some compensation from the government concerned who have the patent.

3699. *Sir Philip Gibbs:* Yes, but surely some of your inventions apply to what I may call military gadgets for the improvement of the fighting qualities of the machine or its bombing possibilities?

Mr. Handley Page: We are not allowed to take out any foreign patent if it is regarded as essential for the defence of the realm under the Official Secrets Act that it should be kept secret. It is only when it has become probably of no special utility to this country that we are allowed to take out a patent abroad. But equally, when that patent has been obtained, the government of that country can use it, whether you agree to it or whether you do not.

3700. *Sir Philip Gibbs:* It just bags it?

Mr. Handley Page: Yes. The same hand that has granted you the monopoly can take it back.

3701. *Professor Gutteridge:* A full specification has to be filed?

Mr. Handley Page: Yes, and as you will know, unless there is complete disclosure the patent can be declared invalid for either ambiguity or lack of subject matter.

3702. *Sir Philip Gibbs:* Am I right in saying that when you submit types of new military machines to governments you might submit four or five types which are very similar and which differ only in perhaps small detail?

Mr. Handley Page: Four or five different firms might do so.

3703. *Sir Philip Gibbs:* And that when one type has been accepted by the government the other types are liberated for sale abroad?

Mr. Handley Page: Yes. There may not be one type only, there may be two types chosen to fulfil a given purpose. To fulfil a given condition, an aeroplane may in one case have a certain combination of features which leave out a very good feature which, in another combination, produces an equally good machine, perhaps with a little better characteristic in the other direction. Two types are chosen, and between those two types there will be intense and continuing competition, both in regard to price and in regard to technical qualities. Take the case of engines. There has been equally intense competition between the Armstrong-Siddeley air-cooled engine and the Bristol air-cooled engine. They have been like the Kilkenny cats, they have been at it all the time, both in regard to price and technical performance.

3704. *Sir Philip Gibbs:* Do you get any reciprocity in the way of information from foreign sources?

Mr. Handley Page: The American National Advisory Committee publish in exactly the same way reports on all the research work, and those reports are purchasable for a very small amount. Equally, the National Advisory Committee officials are always pleased to welcome you there and they will show you over their factories.

3705. *Sir Philip Gibbs:* What about the German firms and the Italian and other aircraft industries?

Mr. Handley Page: I have not been to Italy recently.

3706. *Sir Philip Gibbs:* Let us say Germany?

Mr. Handley Page: They held a conference about six months ago for which invitations were sent to quite a large number of people, and they took them round the German factories.

3707. *Sir Philip Gibbs:* Were you able to see anything of real importance?

Mr. Handley Page: I did not go myself; but some very interesting papers were published.

3708. *Sir Philip Gibbs:* I imagine a nation like Germany, which is preparing a rather extensive air fleet, would not allow you to see their research development?

Mr. Handley Page: In fundamental research work I think there is an extraordinarily great camaraderie in regard to air matters; it exists there more than anywhere else; but, of course, if you asked, say, Sir Herbert Austin whether he would allow Lord Nuffield to go round his experimental departments and inspect next year's models, I think probably the answer would be in the negative; similarly, if I asked another manufacturer in this country whether he would allow me to walk round his experimental department, I should be very pleased to do it, but I am not sure that I should receive any more friendly reply to my request if I made it over here than I should receive if I made it in Germany. I do not think it has anything to do with politics. Mr. Allen reminds me that the Society of British Aircraft Constructors publishes each year an international index of technical papers on aeronautics and that the latest issue contains a very large proportion of German information.

3709. *Sir Philip Gibbs:* You used a rather good phrase a moment ago, that was, "the camaraderie in the international aircraft industry." May I suggest to you that this camaraderie, which no doubt exists as you have already said, of what I might

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call an international collaboration of scientific knowledge and of friendly competition in efficiency of design and fighting qualities, is extremely interesting to the international aircraft industry, but is extremely dangerous to the peoples of the world?

Mr. Handley Page: No. There you go one stage further. I did not say international camaraderie in regard to fighting matters. That is quite different. I am referring to those who are engaged in something which is very new, something that depends on a new science in which basic problems are being studied, in which we are drawing up really the basis of future text-books to deal with this kind of thing, on which collective information does not exist. You will find that in regard to problems of air flow, size of bodies, questions of propeller design and so forth, everybody meets and discusses these questions with the utmost freedom. There is no question of difference of nationality. One is much more interested in—if I might call it—the common fight, in finding out new things. It is the common fight against nature. On the other hand, when it comes down to a question of commercialism, I must say I do not think that exists. When it comes down to private flying there is a camaraderie comparable with that of the sea. Every pilot knows the dangers he has to face—flying in fog, and a hundred and one things. I do not think that has anything to do with the commercial aspect of the situation.

3710. *Professor Gutteridge:* I suppose an aircraft constructor is on one side a business man and on the other side a scientific man?

Mr. Handley Page: "Each man in his time plays many parts".

3711. *Sir Philip Gibbs:* I am rather pressing the argument on this point, because, of course, it is of very great importance. It has already been stated by one of you gentlemen that a considerable number of engines of the most efficient type and suitable, I think, for fighting aeroplanes, were sold to Germany.

Mr. Allen: I do not think we said that the latest types were more particularly efficient.

3712. *Sir Philip Gibbs:* I understand they were all of the latest type.

Mr. Allen: In fact they were not.

Mr. Handley Page: They are of a type that has not been supplied to the British government.

Mr. Fairey: It was done with the full knowledge of the British government.

Colonel Fell: Those engines were not of the types that have been supplied to the British government.

3713. *Sir Philip Gibbs:* They are a good type of engine?

Colonel Fell: Quite a good engine.

3714. *Sir Philip Gibbs:* They were really more than quite good engines, were they not?

Colonel Fell: I should say they represented contemporary practice. They would not do more than that.

3715. *Sir Philip Gibbs:* I think they were the latest and most powerful type of engine that you could produce, were they not?

Colonel Fell: No.

3716. *Sir Philip Gibbs:* Or that you had produced?

Colonel Fell: They represented probably a 3-year old standard at the time they were sold.

3717. *Professor Gutteridge:* Does that mean three years out of date?

Colonel Fell: No—three years from the time they came in.

3718. *Sir Philip Gibbs:* The question I wanted to ask was this. I was wondering whether I should ask it of Sir Robert McLean. Do you think it is good from the point of view of your associated industry to sell engines to a power like Germany, which is building up a great aircraft fleet which might be a menace to us, and that having done so, with full permission of the government, and a certain terror takes possession of the English people, its politicians should then go to Parliament to ask for large sums

of money to increase our air fleet against that menace? That is rather a long sentence. I am sorry. Can you answer that?

Sir Robert McLean: I must assume that if the government, in its sovereign discretion, sees no objection to my selling engines to Germany, then there is no objection, moral or political.

3719. *Sir Philip Gibbs:* You put your conscience entirely in the hands of the British government?

Sir Robert McLean: The established government.

Mr. Fairey: They must take the responsibility.

3720. *Sir Philip Gibbs:* I quite admit the responsibility goes directly to them.

Mr. Fairey: As it would in a nationalised industry. They would be in exactly the same position.

3721. *Professor Gutteridge:* I was wondering, if you abolished the private manufacture of aeroplanes, whether you would still have that control.

Mr. Fairey: You would still have exactly the same control of export as you have now in these matters. Possibly you would not have such good engines to export, or aircraft.

3722. *Sir Philip Gibbs:* That question that I have asked is a question that has to be answered not only by you, or by the British government, but by the nation. Now I want to switch off to another line, and that is this: Do you think it would be possible to draw a dividing line between civil aviation and military aviation and that, without great damage to your industry, government should control the military end of your production?

Mr. Fairey: It does control the military end of our production.

3723. *Sir Philip Gibbs:* That is to say, that it should actually establish a state monopoly over the military end of your production?

Mr. Fairey: Of manufacture?

3724. *Sir Philip Gibbs:* Yes.

Mr. Fairey: You mean the government should manufacture military aircraft and we should manufacture civil aircraft?

3725. *Sir Philip Gibbs:* Yes.

Mr. Fairey: Our case is this, that the government cannot manufacture efficient military aircraft. It has tried and has failed. It has been tried in other countries, and those countries have had to have resort to our private designs. Our case for private manufacture is that it secures efficiency.

3726. *Sir Philip Gibbs:* Do you make any divorce between your service to the state and your service to private enterprise—that is to say, would not your brains and your genius be at the service of the state if the state asked for it?

Mr. Fairey: You mean if we were purely civil-aircraft manufacturers?

3727. *Sir Philip Gibbs:* Yes.

Mr. Fairey: But we should then be such feeble concerns, making merely wooden aircraft, that we would not maintain the experimental research work that we have to maintain for making government aircraft. Our brains and our resources would be at the government's disposal, but they would have no backing behind them worthy of the name for manufacture and research.

3728. *Sir Philip Gibbs:* I can visualise the idea that the government should actually take over your factories and pay you accordingly.

Mr. Fairey: To what end? To run it?

3729. *Sir Philip Gibbs:* Yes, to control it.

Mr. Fairey: They do control it now. Do you mean, to replace our present boards of directors by government officials?

3730. *Sir Philip Gibbs:* I think it might amount to very much the same thing, except that you would be directly manufacturing for the state instead of for private profit; and may I suggest, Mr. Handley Page, that, after all, the main bulk of your business is for the state at the present time.

Mr. Handley Page: And of course the factories, under government control, when nationalised,

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would also deal with all new designs, as the private factories do now.

3731. *Sir Philip Gibbs*: Yes.

Mr. Handley Page: It would, of course, be a solution of the disarmament problem; because there would be little turned out.

3732. *Sir Philip Gibbs*: In some industries, like the chemical industry, they point to the fact that the enormous bulk of their business is for ordinary commercial purposes and, therefore, it would be impossible, they say, to nationalise that industry unless you nationalise every industry in the country. But with regard to this new aircraft industry it seems to me that it would be easy for the government to take over the aircraft industry, and that you would be working rather more for the state than you are at present, but not very much more.

Mr. Handley Page: Well, of course, if it could be done, and done successfully, if one were working wholly for the state, then in that case why not do it? The answer to it is, of course, that in the original days of 1911, or about that time, when Lord Haldane was War Minister, it was envisaged that the whole of the manufacture would take place at the Royal Aircraft Establishment—or the Royal Aircraft Factory, as it then was—and that design and manufacture would be conducted as in a government dockyard; but it has been found by development, not only in this country but everywhere else, that that policy leads to stagnation, because of the lack of the competitive element which I think even Mr. McKinnon Wood in his evidence says is so necessary; that when that competitive element is lacking we fall behind. The great instance was during the War, when the B.E.2.C., a government design, was completely outclassed by privately produced aircraft on the other side.

3733. *Sir Philip Gibbs*: I think it would be fair to say that owing to the elementary stage of aviation at that time compared with its position now, the government factories were not in the position in which they are to-day.

Mr. Handley Page: I think one has to remember all the time that it is not large numbers that are required, but high efficiency, and that it is much more important to have something in small quantities that is ten per cent. better than the opposite side, than large numbers of something that is only mediocre; and it is that terrible rate of technical progress that is called for all the time in developing aviation that you will never get in a nationalised system.

3734. *Professor Gutteridge*: One of our earlier witnesses put it in this way: that you have to be just in front of the other fellow.

Mr. Handley Page: You have to be a good deal in front of him; and inevitably, however much one may regret it or however much one may like it, the power lies with the country which has a great industrial potential due to its private industry. That applies not only to aircraft manufacture, it applies to the production of raw materials, the new alloys that have been referred to, bronze bearings for engines, duralumin in connection with bodies and wings of aeroplanes, the use of magnesium and some of its alloys, all of which is finding an outlet in commercial life. Then one knows the method by which motor cars are produced, and the hundred and one accessories required such as nuts, bolts, and rivets; they are all used for ancillary industries and it is only when you come to the specialised aircraft work that you find that you need to draw on all those industries if you are going to make progress.

Mr. Fairey: Sir Philip, you pointed out that the conditions during the war were different from what they are now, but there are now in the world many national aircraft factories, and they inevitably fall behind private enterprise in design. They come to us for new designs; they buy our designs for reproduction; they mostly come to England.

3735. *Sir Philip Gibbs*: Yes. I thought it was Sir Robert McLean who rather far back in our proceedings this morning said that the aircraft industry—I imagine he meant in design—was tending to stereotype itself.

Sir Robert McLean: Oh, no; rather the contrary.

3736. *Professor Gutteridge*: I think I said that even now the aircraft industry is in a somewhat fluid condition, and I understood you to say that it was settling down.

Sir Robert McLean: The industry. I thought Sir Philip meant not the industry but the art of design, and so on.

3737. *Sir Philip Gibbs*: I must say I was perhaps stressing the design part of the industry; but may I ask you this. Even in design is there not a kind of ultimate possibility; that is to say, can you go beyond a certain limit in speed and fighting efficiency?

Sir Robert McLean: I am not a technical man, but I have heard nobody who would say that we are anywhere near finality either in structure, aerodynamics or speed.

3738. *Sir Philip Gibbs*: The idea that I had in mind was this, that for war purposes it might be possible at this stage to standardise a machine which would be up to the highest level of efficiency.

Sir Robert McLean: It might be up to date to-day and out of date in a year's time, overpassed by some other development.

3739. *Sir Philip Gibbs*: I imagine that if some new crisis were to overtake this country and we had to develop our air fleet enormously, there would be an immediate attempt at standardisation of the best fighting types. Is that so?

Sir Robert McLean: I think they would go hand in hand. The most suitable design would be chosen, the numbers required would be ascertained, and development would continue.

Mr. Handley Page: One of our greatest difficulties in the industry is that even if you take a standard type it is always being modified, and if we were in the midst of a crisis, and unfortunately got into another war, you would find that the experience in the field would necessitate continual change in the aircraft. It is that essential flexibility of development which makes for progress and is only possible when it is being dealt with by people who are in intense competition each with the other.

3740. *Sir Philip Gibbs*: It seems to me, if I may say so with respect, that the present system is a little disorderly. In the present proposal of the government to increase the nation's military aircraft, there does not seem to me to be any order. Shall I say it is haphazard and is dependent on a variety of private businesses and on a variety of designs which are constantly changing, and therefore the government seem dependent upon what I should call a slight anarchy in the situation.

Mr. Handley Page: Does not that mean, in effect, that the government has no fundamental policy?

3741. *Sir Philip Gibbs*: Yes, I think it does mean that.

Mr. Handley Page: I do not think that we as aircraft constructors can be held responsible for that, if it were true; but I do not think it is true; far from it. Really, this has nothing to do with us. 3742. *Sir Philip Gibbs*: It has this to do with you. We have to decide, or at any rate to suggest, whether any alternative system is possible; therefore it does affect you.

Mr. Handley Page: But in this respect the Royal Air Force is a fighting service which has various branches of its arm, and equipment is allotted to its respective branches. Just as in the Army you have infantry, cavalry, and so on, so in the scheme of the Air Force there are different ranges of machines, proceeding from the small

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fighters up to the big bombers, and there is, without doubt, a correlated policy between the different branches as to how many of each kind will be required, when they shall be replaced, and by which type they shall be replaced as they rapidly become obsolete. Then in the scheme of replenishment of the Air Force there is a considered policy whereby certain firms are making certain aircraft in competitive tender and are providing the Air Force with those aircraft. I do not see that you can call that anarchy.

3743. *Sir Philip Gibbs*: I felt in my own mind that if there had been some government manufacture in what is, after all, a new business, it might have been easier to co-ordinate and might have produced more efficient results in the way of fighting machines.

Mr. Handley Page: I very much doubt that, because if you want to make quick progress—that is, if you want to have machines which are more efficient than your competitors—then you must make quick decisions in the various stages, and you will never get that quick decision from a committee controlling a nationalised industry.

3744. *Sir Philip Gibbs*: I am afraid I have asked too many questions, but may I ask two or three more of an entirely different character. As you are aware—indeed, you have already noted—there has been a considerable amount of criticism, and perhaps even abuse, of the private aircraft industry from some of our witnesses and from the outside public. I think the main charges which are made against you are that you are all acting together in a kind of friendly arrangement—

Mr. Fairey: Completely untrue!

3745. *Sir Philip Gibbs*: —in order to establish prices—

Mr. Fairey: Completely untrue!

3746. *Sir Philip Gibbs*: —with which you then face the government. That is one charge. May I enumerate two or three more. Secondly, that you, as a body of industrialists, endeavour to create terror in the public mind so that the government will be forced to give more orders to your firms. Thirdly, that you actually use political effort and efforts in private speeches against the policy of disarmament in order to increase your profits. Those are the charges—they are not personal charges of mine—that have been brought against you. With regard to one other charge, I believe Mr. Fairey has been pointed out as a “very dark criminal”.

Mr. Fairey: Shall I deal with that first. I am very glad that Sir Philip has raised it. That is the sort of thing which is said by witnesses in front of a Commission like this without any regard to facts and, whether intentionally or not, it creates prejudice.

3747. *Sir Philip Gibbs*: Yes.

Mr. Fairey: If that witness had made any effort to ascertain the true facts of the case he would have found that there had been an inquiry in Peru and that the charges were not true. Mr. Webster, a competitor, was alleged to have stated before the Nye Committee that we had charged 10,000 dollars more per machine, and that the equipment we supplied with our machine was inferior in the tests to the American machines, and that someone had received 100,000 dollars commission—that is, £20,000. The total contract was only £42,000. Immediately this charge was made, the Peruvian government instituted an inquiry, through the Ministry of Marine. They cabled to the Ambassadors in Washington and London to ascertain the facts, and the facts ascertained were these: that the net price of the aircraft we supplied was not 10,000 dollars more, but between 600 and 700 dollars less than the American; that no Peruvian official had received any payment, and that no tests had been made as between the two types of machine; in fact, the American ones were not delivered. All those facts were available; they were in the Peruvian press. Mr. Webster, becoming

aware of the investigation, sent the following cable to the Inspector General of Aviation in Peru on 14th September, 1934:

“Commandante Gilardi, Air Force Service, Lima. The versions published in the press regarding the Senate investigations are absolutely incorrect, unwarranted, and contain no vestige of truth of the evidence given. I am very sorry this has happened and I am preparing a sworn declaration which contains the true facts with reference to the Peruvian business. I am sure you will then be convinced that absolutely nothing has been said which would in any way reflect on the integrity of any Government official. It seems that for some political reason there is an attempt to ruin the industry. I trust that you will reserve your opinion until you obtain the exact and complete version”.

I do object to that sort of thing being cast before this Commission as if it were true.

3748. *Sir Philip Gibbs*: We are very willing to accept that statement.

Professor Gutteridge: No doubt you are very glad to have had an opportunity of making that statement.

Mr. Fairey: I am very glad, sir. My name has been bandied about in America and elsewhere. The other charge is that the *Daily Mirror* holds 4,000 of my shares. I cannot help that, but I know that the capitalisation of the *Daily Mirror* Newspapers is £2,200,000, so that their interest in aircraft is 0.18 per cent.

3749. *Sir Philip Gibbs*: In an interview with the *Daily Mail* you are said to have advocated a 400 per cent. increase in the Air Force reserve. That rather suggests to the mind of the critical public, perhaps, that the aircraft manufacturers are urging the nation to build up a very heavy air fleet.

Mr. Fairey: I am pointing out what I consider to be a technical error, that we have not enough reserves in proportion to the aircraft available. We are the only people who can point that out; the government officials cannot do it.

3750. *Sir Philip Gibbs*: I think that government officials ought to be able to do it.

Mr. Fairey: Not publicly.

3751. *Sir Philip Gibbs*: They ought to be able to decide that question.

Sir Robert McLean: I should like to deal with the first point that Sir Philip made with regard to the ring, co-operation or collusion in regard to prices, and that we were in fact authorised to hand in agreed prices to the government. There is not a word of truth in that. We are in the keenest technical competition; we are in the keenest commercial competition where competitive prices are asked for. Prices for any given type are not, nor have they ever been, agreed between us before a tender is placed. I am glad to be able to give a denial to that statement, because we always keep our proceedings entirely free from matters of that sort.

(Adjourned for a short time.)

On resuming:—

3752. *Sir Thomas Allen*: In section XIII of your statement,* you quote Lord Marley, who claimed, and was very insistent upon, the essential necessity of national production with regard to aeroplanes. I would like to say in that connection that Lord Marley, while he is an advocate of peace, was very insistent that with regard to the future we should not be left in the position that we were at the time of the last war. His point was that if war was a necessity we should be sure of being nationally equipped to the highest possible efficiency. I take it that in any scheme of national production in war time or in an emergency we should have greatly to increase the present output—one hundredfold, or

* See p. 515, *supra*.

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perhaps even more than that. What is your position with regard to quick expansion in war time as distinct from peace time?

Sir Robert McLean: That is a question that I think, with all deference, should be directed to government witnesses.

3753. *Professor Gutteridge:* I think it may involve questions of policy in regard to national defence, may it not?

Sir Robert McLean: We are not prepared to disclose figures on that point.

3754. *Sir Thomas Allen:* My point is that while in the last resort it is a question for the government, it would be interesting to know something about your capacity in an emergency.

Sir Robert McLean: I have no doubt they would give you all the figures that you desired as a Royal Commission.

3755. *Sir Thomas Allen:* Thank you. You told us this morning that with regard to aircraft we are up against a new science—which implies, of course, that the nation of the future to which flying is not a commonplace will be out of the running. You would agree with that, would you not? It has been put to us that because of that fact there is the clearest possible case for a system of state manufacture. Have you anything to say on that?

Sir Robert McLean: I think it is a mistake to divorce manufacture from invention and design. The state might conceivably manufacture a very large number of indifferent things. The technical supremacy is equally as important as the mere production of a bit of equipment. I would not be prepared to agree here and now that state manufacture is inevitably necessary to keep technique predominant. I should take the other view.

3756. *Sir Thomas Allen:* We have been told that the aircraft industry is very slightly connected with other industries. Can you tell us how far your ability to expand is dependent upon any other production in which you may be engaged?

Mr. Handley Page: I think it is interconnected at almost every stage, right from the raw material almost to the finished article.

Secretary: I do not think you caught the question. The question is how far your capacity for expansion is dependent upon your own activities in other kinds of production than military production. Is not that what you mean, Sir Thomas?

Sir Thomas Allen: Yes.

Sir Robert McLean: The ability to expand is a matter of the capacity of the various plants in the industry. In so far as you can, having regard to the number of shops and the number of employees, divert from civil to military work that is your capacity for expansion, but, as I have said, I think we are not entitled to put that into figures.

3757. *Sir Thomas Allen:* You have referred to raw materials. Have you any control over raw materials in any way, or do you manufacture any?

Sir Robert McLean: None whatever.

3758. *Sir Thomas Allen:* You are totally dependent on other manufacture than your own?

Sir Robert McLean: For raw material, yes.

3759. *Sir Thomas Allen:* We have been told again and again about the alleged want of collaboration between the Admiralty, the War Office and the Air Ministry. Is there anything that is still wanting with regard to air production in that direction? Do they come to you collectively or in any other way?

Sir Robert McLean: We deal only with the Air Ministry, who are responsible for the supply to the other arms of the service.

3760. *Sir Thomas Allen:* A reference was made this morning to exports. I noticed that a question was put in the House of Commons with regard to the export of aircraft, and in the reply it was stated, if I remember rightly, that 415 complete aeroplanes were exported and 687 engines; that of those completed aeroplanes, 408 went to Germany, leaving 7

for all other countries; and 583 engines went to Germany, leaving 104 for other countries.*

Professor Gutteridge: Have you the dates, Sir Thomas?

Sir Thomas Allen: I am sorry, I have not at the moment. Presuming those figures are accurate, and in view of the fact that was advanced this morning that those engines in particular were about three years old, were they from stock or were they manufactured to a pattern that was three years old?

Colonel Fell: They were manufactured to a pattern that was three years old. They were manufactured specially.

3761. *Sir Thomas Allen:* You would not regard that pattern as being obsolete in any way?

Mr. Allen: Would you mind telling us where the figures come from?

3762. *Sir Thomas Allen:* They came in a reply to a question put in the House of Commons, I believe by Dr. Addison. It is very vague in my mind at the moment, but I took the figures down at the time and that was the reply, if my memory is not at fault.

Sir Robert McLean: Might I get the figures clear? You mentioned 408 aircraft exported to Germany?

Professor Gutteridge: Perhaps Sir Thomas would repeat the figures.

3763. *Sir Thomas Allen:* 415 complete aeroplanes, of which 408 went to Germany, and 687 engines, of which 583 went to Germany.

Sir Robert McLean: What year was this?

3764. *Sir Thomas Allen:* Last year.

Mr. Handley Page: I do not think there have been any aeroplanes exported to Germany.

Mr. Fairey: I have never heard of one.

Sir Robert McLean: But if there had been, they would have been exported with the full approval of the government, had they been military aircraft. I question the figures. I think the figures are not accurate.

3765. *Sir Thomas Allen:* If they had been exported we may take it that they would have been exported with the consent of the government. But what is troubling us is this, that someone said this morning that occasionally an aeroplane or an engine was sent out and they manufactured from one or more machines. It is not possible to say that all those would have been sent out simply as a basis of manufacture for others.

Mr. Fairey: There is something wrong. I have never heard of a solitary aeroplane being exported to Germany.

3766. *Professor Gutteridge:* Is it a question of date? You are speaking of last year.

Sir Robert McLean: Or any year.

3767. *Professor Gutteridge:* Is it possible they were exported at any earlier period?

Mr. Fairey: There never have been aeroplanes exported to Germany. I do not think there is a solitary instance.

3768. *Professor Gutteridge:* So the date is immaterial from that point of view.

Mr. Fairey: I cannot recall that a single aeroplane has been exported to Germany since the War.

Colonel Fell: There were 80 engines of the Siddeley make and roughly 30 Rolls-Royce engines—I think that is the total—and those were not exported during last year at all. They were all exported in 1934.

3769. *Sir Thomas Allen:* I will ask the secretary to verify or otherwise my figures. We will get it on the record later on.*

Sir Robert McLean: Certainly we will look it up.

3770. *Sir Thomas Allen:* With regard to your Society, does it rest upon any financial structure at all?

* QQ. 3760—3769: In reply to a question in the House of Commons on 11th July, 1935, it was stated that during the year ended May, 1935, 408 complete aeroplanes and 583 aeroplane engines of United Kingdom manufacture were exported, and that of these, 5 complete aeroplanes and 80 aeroplane engines were exported to Germany.

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Sir Robert McLean: No. The Society's reserve funds are merely those required to carry on its day to day activities.

3771. *Sir Thomas Allen:* Do you at any time help to keep each other going?

Sir Robert McLean: No.
3772. *Professor Gutteridge:* What is your issued capital?

Mr. Allen: We are at cross purposes. Do you mean the issued capital of the industry?

3773. *Professor Gutteridge:* No, of your Society.

Mr. Allen: The Society is a company limited by guarantee and has not any capital.

3774. *Professor Gutteridge:* You have not obtained the permission of the Board of Trade to omit the word "Limited," that is all?

Mr. Allen: Yes.

3775. *Sir Thomas Allen:* I notice in the figures of the returns that the export of aeroplane engines and parts during the last 10 years has totalled an average of £1,500,000. Would you agree that?

Sir Robert McLean: Yes, per annum.

3776. *Sir Thomas Allen:* What percentage is that of the total production in Great Britain?

Mr. Fairey: The Air Ministry orders are about £5,000,000.

3777. *Sir Thomas Allen:* And may I take it that the export of aeroplanes that are or are not instruments of war is as high as anything in the way of military exports?

Sir Robert McLean: We have no data on that.

3778. *Sir Thomas Allen:* There is one point I would like to clear up. I have read that while non-inflammable diesel oil is used for trams, ships, omnibuses, and other forms of transport, it is the exception to use it for aeroplanes. Is that so?

Sir Robert McLean: That is not strictly true. Diesel oil is used in certain cases in air transport—so far not in many cases, but the reason is one of technical development.

3779. *Sir Thomas Allen:* Is it largely true?

Sir Robert McLean: It is largely true, yes.

3780. *Sir Thomas Allen:* It has been further advanced that the use of the petrol engine is superior for military purposes but that, as a result of using the petrol engine, when an airman comes down there is no chance at all for him, the machine simply blazes away; that on the other hand, if a diesel engine were adopted, the result might be quite different, and there would be a saving of life. Can you help us by giving us any information in regard to that?

Mr. Fairey: In the first place, the object of using the diesel engine would be for the long-range machine, not for the short-range. The petrol engine is infinitely superior for the short-range machine. For the machine that stays in the air for over four or five hours the diesel engine is superior, but for anything less than that the petrol engine is superior. That is approximately. The fire danger has been proved to be located mostly in the inflammability of the hot oil from the broken engine to the exhaust. Certain experiments have been made in America. It is not certain that the use of diesel oil would remove the fire danger. It would probably reduce it; but it is not certain. The chief source of ignition has been proved to be the hot oil from the engine itself. It reaches the exhaust valves or exhaust manifold and fires more swiftly.

3781. *Sir Thomas Allen:* This morning you told us that the only country producing for itself was Soviet Russia. Later you said that you were exporting engines to Soviet Russia. Did I understand you aright?

Mr. Fairey: We were speaking of aircraft. Not in big quantities; small quantities.

3782. *Sir Thomas Allen:* Complete aircraft engines?

Mr. Fairey: Complete aeroplanes with engines.

3783. *Sir Thomas Allen:* Complete planes?

Mr. Fairey: Complete planes.

3784. *Sir Thomas Allen:* Would it be giving away any secret if you were to tell us something about the quantity?

Mr. Fairey: It is very small.

3785. *Sir Thomas Allen:* I would like to develop the point that was advanced this morning by Sir Philip with regard to collaboration for scientific research. Witnesses have told us that the flexibility of the present system is very detrimental to mass production in time of war and that a system of standardisation would be very much better, that this infinite variety of firms and variety of types which different companies handle is a very serious handicap in the hour of emergency. Could you say anything about that?

Mr. Fairey: It is entirely a question for the Ministry. These types are made to the order of the Ministry. We do not decide what types are to go into production. We wish we did. It is for military reasons that they have this variation. They would have just as many types if the factories were nationalised—or they would need them.

3786. *Sir Thomas Allen:* On the supposition that you had more or less a free hand and were not subjected to the Air Ministry in any way, would you favour less variety in types of machine?

Mr. Fairey: That is a military question, not a commercial one. These different types exist not because of the number of firms but because of the different types of military aircraft that are required; there is the interceptor, and the reconnaissance fighter, and a number of different types. The requirement is a military one. The commercial requirements do not affect the situation.

3787. *Sir Thomas Allen:* Failing state ownership or state monopoly, have you any suggestions to make that would be helpful to us with regard to the control of profits? Because one of the strong arguments that has been put up to us is that this type of manufacture—like others, of course—is a profit-making machine and the public are more or less alarmed at the profits that are made out of these industries. What suggestion can you make with regard to the control of profits that would give the public confidence, which they do not appear to have at the present time?

Sir Robert McLean: If I may refer to the present emergency and what is called the expansion programme, I think I could probably set your mind at rest by saying that in all matters regarding prices, and therefore profits, the industry as a whole has agreed that in any case of disagreement about the adequacy or otherwise of a price we would be prepared to abide by the advice of three impartial gentlemen of high standing, that we would be bound to accept the advice that they offered to the Secretary of State for Air as to the price to be paid.

3788. *Sir Thomas Allen:* There would be a system of government costing *vis-à-vis* your industry. The matter would be gone into closely and prices would be adjusted.

Sir Robert McLean: There would be a technical cost investigation of our tendered price and in case of inability to agree a price with the Air Ministry then these three impartial gentlemen of high standing are called in, the matter is referred to them, and we are bound to abide by their decision. They were appointed by the Secretary of State for Air.

Professor Gutteridge: It is virtually a system of arbitration. The only difference is that you allow the other side to appoint the arbitrators. Otherwise it is an arbitration.

3789. *Sir Thomas Allen:* Would you have any objection to the publication of the decision arrived at between you and the Air Ministry? That would give confidence to the public.

Sir Robert McLean: That, I think, is purely a matter for the Secretary of State. They are his nominees.

3790. *Sir Thomas Allen:* Have you any idea of the size of the aeroplane business on the continent, or outside Great Britain—is it very large?

Sir Robert McLean: It varies in different countries.

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[Continued.]

3791. *Sir Thomas Allen*: You have no figures at all?

Sir Robert McLean: No figures at all.

3792. *Sir Thomas Allen*: With regard to world production.

Sir Robert McLean: No. In many cases figures of production would not be available.

Mr. Fairley: Many air forces are bigger than the British, and therefore we must assume that the figures are bigger.

3793. *Sir Thomas Allen*: That would apply to Germany?

Mr. Fairley: To Germany also.

3794. *Sir Thomas Allen*: In the last paragraph of section VIII of your statement,* you make this remark: "... that the backbone of the Ministry"—that is the Ministry of Munitions—"was the private industrialists who readily gave their services to co-ordinate and control production." I take it that whatever the decision might be with regard to national production in totality, or in part together with private production, you would give that loyalty in any future emergency that you have given in the past.

Sir Robert McLean: I think so. That stands as a matter of course. It is a question of patriotic citizenship.

3795. *Dame Rachel Crowdy*: I am very interested in a paragraph in section XII of your statement. You say "Beyond these regulations the Ministry"—that is the Air Ministry—"exercises an overriding veto on foreign sales of military aircraft, including the grant of licences to manufacture abroad." You go on to say "It is assumed that the Board of Trade would not grant an export licence without reference to the Air Ministry, but in practice the matter is referred to the Air Ministry by the aircraft constructor direct in the beginning, and the constructor acts in accordance with the wishes expressed by the Ministry." In one case it deals with the grant of licences to manufacture abroad and in the other it deals with the grant of licences for export. I have two questions to ask. First of all, can you give this Commission any idea of what is the basis—if you know it—of the Air Ministry's veto on the grant of licences for setting up factories abroad?

Sir Robert McLean: The setting up of factories has no relation to this matter.

3796. *Dame Rachel Crowdy*: You mention the veto on foreign sales, including the grant of licences to manufacture abroad.

Sir Robert McLean: That is the licence to another constructor abroad to manufacture a particular type of aircraft.

3797. *Dame Rachel Crowdy*: I should be very interested to hear what is the basis of the grant.

Sir Robert McLean: The basis, I think, is this, that they have no objection to our making this particular design of commercial value to us, provided it is not against the public interest.

3798. *Secretary*: Is the veto based on statutory authority?

Sir Robert McLean: The veto is not based on statutory authority.

Mr. Fairley: I would not be quite certain. The Ministry have issued a memorandum informing us that we have to obtain permission. Of course there is the Official Secrets Act, but above all there is the fact that we are hand and foot with the Air Ministry. We would in no way upset them.

Sir Robert McLean: I think it is a question of public interest. If what is being disclosed is of no detriment to the public interest they would have no objection.

Mr. Fairley: I imagine the Official Secrets Act is elastic. They could find a way out.

3799. *Professor Gutteridge*: It is reinforced by the fact that they have resident officers.

Mr. Fairley: They have resident inspectors. Everything that we do comes under their eye.

3800. *Dame Rachel Crowdy*: With regard to this second sentence—"It is assumed that the Board of Trade would not grant an export licence without reference to the Air Ministry," etc.—would the Board of Trade ever refuse to grant a licence which was recommended by the Air Ministry should be granted to you? Have you had any cases where the Board of Trade has refused on the recommendation of the Air Ministry to grant a licence? Can you remember any?

Mr. Fairley: I cannot remember one.

3801. *Dame Rachel Crowdy*: Are you ever refused a licence?

Mr. Fairley: Very often. We are refused permission to export.

3802. *Dame Rachel Crowdy*: I mean an export licence.

Mr. Fairley: Very often.

3803. *Dame Rachel Crowdy*: For political reasons?

Mr. Fairley: For political reasons and no other. The China war, the Chaco war, the Greek revolution, were cases.

3804. *Dame Rachel Crowdy*: Of refusal to allow the export of military aircraft?

Mr. Fairley: I am afraid we do not question the authorities. We are so accustomed to take it for granted that they have the necessary statutory powers. We asked the Ministry's permission, having got contracts, and they said no.

3805. *Dame Rachel Crowdy*: Can you export convertible planes? It has been stated in evidence that you can make commercial planes into military planes, that a certain type of plane is convertible.

Mr. Fairley: You do not need a licence to export purely civil aircraft. That is to say, aircraft with no equipment and fittings for military purposes. Nevertheless, no attempt is ever made to evade the regulations.

3806. *Dame Rachel Crowdy*: The type of aircraft that has been termed by our witnesses "convertible" is, I suppose, easy to convert.

Mr. Fairley: I do not know what that means.

It depends upon what are the military purposes for which it is required and the type of machine.

3807. *Dame Rachel Crowdy*: I suppose they refer to those types that could be used for bombing purposes.

Mr. Fairley: You can use any plane for bombing purposes provided it will not be encountering any fighting planes.

3808. *Dame Rachel Crowdy*: Those you can export quite freely without licence?

Mr. Fairley: Yes.

3809. *Dame Rachel Crowdy*: Even to any country for which there is an embargo on the export of military aircraft?

Mr. Fairley: Presumably.

3810. *Dame Rachel Crowdy*: Did you in fact export to any great extent these commercial planes that could be converted, to China and Japan from 1931 to 1933, to Bolivia and Paraguay from 1932 to 1935?

Mr. Fairley: None whatever. The bulk of us do not make any civil aircraft, or very few, and the de Havilland standard planes are much too small for bombing. It is only recently that the de Havilland transport planes might be used for bombers. I am sure they never have. No attempt has been made to evade the regulations.

3811. *Dame Rachel Crowdy*: Then you would not have any objection, in view of the fact that certain civil planes are convertible for certain purposes, if the export licence granted by the Board of Trade were extended to civil planes?

Mr. Fairley: I imagine not. A few more regulations more or less would make no difference.

Mr. Handley Page: Commercial machines are not readily convertible into war planes. It is true to say that the development of high-speed planes is tending to merge towards one another, but that is a different thing from making a machine convertible. I do not think any power wanting to buy

* See p. 511 *supra*.

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a quasi-military machine would think of buying a civil machine with a view to converting it.

3812. *Secretary*: Is not a military machine without its military equipment a civil machine for the purpose of the regulations?

Mr. Handley Page: I suppose that any military machine when you take off the military equipment you can say is a civil machine.

3813. *Professor Gutteridge*: We were told that the Germans were making aeroplanes of that kind while they were under the ban of the Treaty of Versailles, that they were making something that purported to be a commercial plane, but which could be used for military purposes.

Mr. Handley Page: I think that is very largely a tale. When you are making a machine which it is worth while for an efficient service to use, then you have to be prepared for great changes to make a civil machine into a military one, but what was said this morning was quite different from the question of whether a machine is convertible or not from civil to military. This morning it was said that the designs of military and civil machines tend to become similar under certain conditions and the paramount condition is this that the aeroplane is designed for speed and that in the case of the military aeroplane speed and not armament is accepted as the defence of the aeroplane.

3814. *Dame Rachel Crowdy*: I am speaking of evidence which was given before us about three months ago. We had evidence which was in complete opposition. One day we would hear that a commercial plane could be easily converted for bombing purposes, the next day we were told by another witness that it was absolutely impossible.

Mr. Fairey: It was a confusion of thought. I am not sure that those people were well informed on the question. The fighting aircraft has no parallel in the civil aircraft. The bomber is only of use if it is in country where it cannot encounter fighting aircraft. The commercial plane would have to be redesigned before it could become an effective military aircraft.

3815. *Dame Rachel Crowdy*: The evidence that I had in mind was in connection with a country, obviously in the Far East, where there were no fighting planes to send up against any converted bombing planes that were sent over.

Mr. Fairey: You could use a transport machine as a bomber if you devised and installed the gear for dropping the bombs.

3816. *Dame Rachel Crowdy*: Have you sent any commercial planes to China—that is the country I have particularly in mind?

Mr. Fairey: No.

3817. *Dame Rachel Crowdy*: Or to Bolivia and Paraguay at the time the embargo was on?

Mr. Fairey: No, I assure you that no attempt has been made to evade these regulations.

3818. *Dame Rachel Crowdy*: Certain accusations have been made—

Mr. Fairey: And we thank you for the opportunity of denying them.

3819. *Dame Rachel Crowdy*: No doubt you have read most of the evidence that has been given to this Commission in regard to the aircraft industry, and you know the various accusations that have been made against the industry during our sittings of the last six months. Among others there has been the accusation that the British technical delegates at Geneva opposed total air disarmament. Would you agree with that?

Mr. Fairey: They were not British technical delegates; they were military people.

3820. *Dame Rachel Crowdy*: If you will read your Geneva evidence a little further if you have it by you, you will find that it was stated that the aircraft industry was very much behind the technical delegates who opposed total air disarmament. That is an accusation that has been made. Like Sir Philip, I am not saying that it is a true accusation,

but would you agree that the British technical delegates at Geneva opposed air disarmament?

Sir Robert McLean: The delegates there were carrying out the instructions of the government, they were servants of the government. We had no influence on them whatever, and anything they did was done at the behest of the government of which they were servants, and to lay it at our door that we helped or hindered, encouraged or discouraged them is a complete violation of the facts.

3821. *Dame Rachel Crowdy*: Like Sir Philip, I make no accusation. I simply convey to you the statement that was made to us, and I am very grateful when you give me the answers to the questions that I put to you. I wanted to ask you one more question in connection with what Mr. Allen said just now. He was talking about those 80 engines that were sent to Germany. Would they be exported under Board of Trade licence or not, in view of the fact that we were told that they could have been used for military purposes?

Colonel Fell: They were definitely exported under Board of Trade licence.*

3822. *Dame Rachel Crowdy*: Therefore, the assumption is that they were military planes, otherwise they would not have required the Board of Trade licence.

Colonel Fell: We should have had to get a licence at any time.

3823. *Professor Gutteridge*: You do not require an export licence for engines.

Secretary: Surely the open general licence would cover engines?

Colonel Fell: They were not exported as military planes at all, they were exported for civil firms.

3824. *Secretary*: But they were exported under licence?

Colonel Fell: Yes.

3825. *Professor Gutteridge*: You can give us the names of the firms if necessary?

Colonel Fell: Certainly.*

3826. *Sir Kenneth Lee*: At the end of section VI of your statement you mention the head of the German Army Air Service. I am not quite sure whether you are referring to the head during the War or the present head?

Mr. Allen: The head during the War period. That is an extract from his own reminiscences.

3827. *Sir Kenneth Lee*: That has nothing to do with the present situation. A good many questions have been put to you with regard to research and secrecy. Would it not be very much easier, if the state produced the aeroplane and did the research work, to maintain secrecy for a longer time?

Mr. Fairey: We are entrusted with a number of official secrets and I have never heard of one leaking out. It does not look as if the present system could be improved upon. During the 20 years that most of us have been in the business we have been entrusted with many official secrets. We know in advance what the government specification will be. In spite of this world-wide co-operation that people talk about, I have never heard a solitary complaint from the Air Ministry or from anyone else that a single secret has leaked out.

3828. *Sir Kenneth Lee*: Are all your people under secrecy agreements?

Mr. Fairey: Not all of them, but the secret information reaches the managing-director or the head of the firm and it is, at his discretion, communicated only to those people whom he has under his control.

3829. *Sir Kenneth Lee*: So that they could not leave your service and go elsewhere and disclose the secret?

Mr. Fairey: Not in the stages during which the information remained secret. You understand this information is only secret while it is new. After a certain period we are permitted to publish it.

*QQ. 3821—3825. The witness subsequently modified his answers to these questions. See Appendix 2, p.533.

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[Continued.]

We never keep a watch on the people; they are all old-established; indeed, they would have to be old-established to hold the high position that they occupy in our drawing offices.

3830. *Sir Kenneth Lee*: But it has only been kept secret because, I take it, the state has been anxious to help you to keep your business together and get orders. The state would not have the same interest in getting orders if they themselves produced the goods.

Mr. Fairey: No, but I suggest the secrecy would be no better, because a state employee could also leave the state employ with secrets of that nature in his possession.

Sir Robert McLean: I am not quite clear what you mean by "secret." Do you mean that aircraft design ought not to be disclosed, or do you refer to the government disclosure to us long before it reaches the stage of design; or do you refer to patents?

3831. *Sir Kenneth Lee*: The patent may never be disclosed, but any information that you have about improvements that it is not desirable for the world to know. If you are doing a great deal of research work you are bound to come across things of importance and invent improvements.

Sir Robert McLean: Any improvements that we make, naturally, in the first place go into the machine that we are developing for the government. Those automatically become secret and nothing can be disclosed until they are on the Open List. There is an intermediate stage where there is part publication, when no secret of importance may be disclosed by us.

3832. *Sir Kenneth Lee*: It is said that it is easier for disclosure to take place or for anything to leak out when it is in the hands of private enterprise than when it is in the hands of the state.

Sir Robert McLean: My answer is that it is not. One could go further and say there is probably more to conceal under the present regime than if the government were responsible for design and development; nevertheless, it does not leak out. It is not to the interests of the firms that it should leak out.

Mr. Fairey: If we file a patent we have a demand from the Air Ministry to disclose it in the provisional stage. If it contains anything of national use and should be kept secret we are requested to hand it over, and we transfer it.

3833. *Sir Kenneth Lee*: Is it not easier for the organisation that does the long distance research to carry that work up to the point of the actual production of the article?

Sir Robert McLean: I think the two functions are quite different. In one case you have the scientists doing basic research, and in the other case you have the skilled draughtsmen and the skilled technicians bringing in their knowledge of metallurgy and so on. There are two different types of people, one the scientist and the other the technician.

3834. *Sir Kenneth Lee*: Surely in other industries it has been proved of great advantage to have the research and technical departments in the closest collaboration?

Sir Robert McLean: Basic research, I think, no; *ad hoc* research, yes. And, of course, we ourselves have our *ad hoc* research establishments which are in the closest collaboration with our technicians and working under the same head. There is scientific research and *ad hoc* research; one is of general application and the other is of particular application.

3835. *Sir Kenneth Lee*: But is it not true that any really revolutionary development must come through long distance research?

Sir Robert McLean: Not necessarily.

3836. *Sir Kenneth Lee*: Why not?

Sir Robert McLean: It may come by following up a line of *ad hoc* development which suddenly discloses something of value that is worth pursuing further.

Mr. Fairey: It may be entirely accidental, such as the slotted wing flap. I have never heard of a pure scientist designing an aeroplane. I would hate to fly in it if he did. The scientists in our research department are on the staff of the designer.

Mr. Handley Page: I have here, if the Commission would like to see it, one of the bound volumes issued each year containing the technical reports of the Aeronautical Research Committee. This copy deals almost entirely with basic research, some of it of a physical mathematical nature comparable with what you find in text-books. The only difference between the aircraft industry and other industries is that we are still engaged in fundamental basic research and not only in *ad hoc* research. The results of that fundamental research are published in this country and other countries. Each firm in addition does *ad hoc* research which in some other industries is provided for by a communal body. The non-ferrous metals industry, the textile industry, undertake that research. We all do *ad hoc* research, but in addition to that we do fundamental research and that is the kind of bible upon which we work.

3837. *Sir Kenneth Lee*: Is not one of the weaknesses of the research movement that very often the industry does not take advantage of the work that has been done?

Mr. Handley Page: That is where I believe the aircraft industry is so much better off than any other industry. In 1911 Lord Haldane laid it down that there must be long range research through the Aeronautical Research Committee. The aircraft industry meets the Aeronautical Research Committee every six months and discusses the whole programme of design. Visits are paid by members of the Aeronautical Research Committee to the different works and the industry tell them what they are doing. We work very closely hand-in-hand with the Department of Scientific Research which deals with these basic problems. That is in connection with our *ad hoc* research work. Then we deal with the technical departments which apply all the principles gleaned from the text-books to actual specifications of aircraft and the industry is asked to work those out. Then we come to the actual application of engineering principles in production. All the way through there is extreme collaboration between the Air Ministry and the industry. I might say the industry is a model that others might copy.

Mr. Fairey: We are a small community; we all know each other.

3838. *Professor Gutteridge*: It is rather like the Yorkshireman's opinion of himself.

Mr. Handley Page: When things are said on the other side I think it is only fair that the industry should give its own view.

3839. *Mr. Spender*: It has been stated that your industry is covered by the government in regard to whatever you do. The allegation has been freely made that those engines exported to Germany could only be used for military purposes. It would be interesting to hear your view.

Sir Robert McLean: My view is that any engine round a given horse-power can be used in a civil or a military aeroplane if it is of modern type.

3840. *Mr. Spender*: Your view is that they were to be used for civil aviation?

Sir Robert McLean: I understand they were consigned to a company making civil aircraft.

3841. *Mr. Spender*: And you say the government presumably is satisfied?

Sir Robert McLean: Presumably the government, having granted a licence, is satisfied.

3842. *Mr. Spender*: In addition to exporting aeroplanes and engines do you send constructors and technicians with your machines when they go abroad?

Mr. Fairey: Flying instructors do you mean?

3843. *Mr. Spender*: Yes.

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[Continued.]

Mr. Fairey: No. We send occasionally foremen erectors or people to assist in assembling them.

3844. *Mr. Spender:* Supposing it is a new type and you do not want it to fall into discredit, you want it to be properly handled?

Mr. Fairey: We send an erector, as we call him—a workman.

3845. *Mr. Spender:* We have heard a great deal about this country being backward in aviation. It is said that we are far behind. But according to the kind of picture that you have presented to us we are very much in the forefront technically and commercially. That is your view, is it not?

Sir Robert McLean: I think that is a fair description, subject to the requirements of this particular government.

3846. *Mr. Spender:* Therefore, such backwardness as is alleged, is not due to the industry or to its technical branches?

Sir Robert McLean: No. I would go further and say that where there appears to be disparity it is very often due to conditions peculiar to us. For example, in the development of civil aviation we have been trying to make air transport an economic proposition. On the other hand, America has been prepared to spend £5,000,000 to £7,000,000 a year in trying to make it spectacular. I think I am correct in saying that we spend £350,000 a year against the £5,000,000 to £7,000,000 spent by America.

3847. *Mr. Spender:* There has been very much criticism, and it is agreeable to have your view on record.

Mr. Fairey: We have not, of course, admitted that we are equal in strength of numbers.

3848. *Sir Thomas Allen:* I would like to ask one supplementary question, Sir Robert. Would you view with much apprehension the separation of military from civil aircraft?

Sir Robert McLean: I do not think I would be interested. For one thing, I do not make civil aircraft. The technique of both being the same, it would be entirely uneconomic to separate them.

Mr. Fairey: If it meant that the production of military aircraft would be nationalised I should view it with considerable apprehension, not from my point of view as a manufacturer, but because I know that this country would fall behind.

3849. *Professor Gutteridge:* I do not think that is what Sir Thomas meant. He was asking whether it was possible to carve the industry up into two sections, as I think was suggested by Mr. McKinnon Wood.

3850. *Sir Thomas Allen:* There was a suggestion made to us by someone that the government should undertake the whole aircraft production, that with regard to the military aircraft they should be the sole salesmen abroad, and that they would leave commercial enterprises free to the private firms.

Mr. Fairey: I understand.

3851. *Professor Gutteridge:* I think the phrase used was that they would then throw off the civil part of the business. I think it was Mr. McKinnon Wood who said they would take over the whole and then throw off the commercial part.

(The witnesses withdrew.)

(Adjourned.)

APPENDIX 1

MEMORANDUM BY THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTION, LTD.

ANNEX A

ORDINARY MEMBERS.

Armstrong Siddeley Motors, Ltd. (engines).
Sir W. G. Armstrong Whitworth Aircraft, Ltd. (aircraft).
Blackburn Aeroplane and Motor Co., Ltd. (aircraft).

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Sir Robert McLean: I think if that were done and if there were a sufficient volume of civil business demand, firms would meet it. It is obviously a matter of volume of demand.

3852. *Professor Gutteridge:* You do not see anything inherently impossible in it?

Sir Robert McLean: No.

3853. *Sir Thomas Allen:* Do you place any check upon any new aeroplane firm coming in?

Sir Robert McLean: No, we cannot influence that.

3854. *Professor Gutteridge:* You have no interest in foreign companies?

Mr. Fairey: My company in Belgium has been mentioned. Avions-Fairey, and it was said by a witness, in much the same light-hearted manner as other accusations have been bandied about, that it was done to evade the export licence system. Nothing of the kind. We were successful in competition with the whole world in securing orders for the equipment of the Belgian Air Force, subject to the condition that we set up a factory in Belgium to make that equipment. That Belgium branch operates under the Belgian government.

3855. *Professor Gutteridge:* Had that machine previously been offered to our people?

Mr. Fairey: Yes, and not accepted.

3856. *Professor Gutteridge:* None of you maintain any subsidiaries abroad, do you?

Mr. Fairey: I think that is the only one. I believe there is one more company in Greece. The Blackburn company used to have a depot in Greece. I am not sure whether they still have it.

3857. *Professor Gutteridge:* Anyhow, it is not the practice in the business?

Mr. Fairey: No.

Mr. Handley Page: The Blackburn company only manage the national factory for the Greek government where repairs and manufacture are carried out. They do not own it.

3858. *Dame Rachel Crowley:* I ask this question more from personal curiosity than anything else. Are you in the least interested, either from a scientific or financial point of view, in the development of seadromes? I have heard that matter discussed in various parts of the world, in Japan, China, Russia and the States.

Sir Robert McLean: For myself, I should say it is an American idea, the testing out of which I should like to leave to them.

3859. *Dame Rachel Crowley:* It is being pushed by an Englishman.

Sir Robert McLean: Yes, but the Americans are backing it.

3860. *Dame Rachel Crowley:* It is an American financed enterprise?

Sir Robert McLean: Yes; I should very much hesitate to back it myself.

Mr. Fairey: I would endorse that view. I do not think it is a very practical suggestion.

Professor Gutteridge: Thank you, we are very much obliged to you gentlemen for coming to give us the benefit of your evidence.

Sir Robert McLean: Thank you very much.

D. Napier & Son, Ltd. (engines).
 Handley Page, Ltd. (aircraft).
 A. V. Roe & Co., Ltd. (aircraft).
 Rolls-Royce, Ltd. (engines).
 Saunders-Roe, Ltd. (aircraft).
 Short Bros. (Rochester and Bedford), Ltd. (aircraft).
 Supermarine Aviation Works (Vickers) Ltd. (aircraft).
 Vickers (Aviation) Ltd. (aircraft).
 Westland Aircraft, Ltd. (aircraft).

ASSOCIATE CONSTRUCTORS.

A.B.C. Motors, Ltd. (engines).
 Aero Engines, Ltd. (engines).
 Airspeed (1934) Ltd. (aircraft).
 British Aircraft Manufacturing Co., Ltd. (aircraft).
 Cirrus-Hermes Engineering Co., Ltd. (engines).
 General Aircraft, Ltd. (aircraft).
 Heston Aircraft Co., Ltd. (aircraft).
 Parnall Aircraft, Ltd. (aircraft).
 Percival Aircraft Co. (aircraft).
 Phillips and Powis (Aircraft) Ltd. (aircraft).
 Pobjoy Airmotors and Aircraft, Ltd. (aircraft and engines).
 Spartan Aircraft, Ltd. (aircraft).
 Wolsley Aero Engines, Ltd. (engines).

ASSOCIATE MEMBERS.

Accles and Pollock, Ltd., steel tubing.
 Aeronautical and Panel Plywood Co., Ltd., plywood.
 Aircraft Components, Ltd., aircraft components.
 Aircraft Materials, Ltd., aircraft accessories, parts, materials, etc.
 Airscrew Co., Ltd., airscrews.
 Albion Drop Forgings Co., Ltd., drop forgings.
 Amal, Ltd., pumps, carburettors, etc.
 Auster, Ltd., aircraft accessories, windshields, etc.
 Auto-Auctions, Ltd., aeroplane agents and concessionaires.
 W. & T. Avery, Ltd., weighing and testing machines.
 Louis Bamberger & Sons, aeroplane timber importers.
 Birmingham Aluminium Casting (1903) Co., Ltd., aluminium and magnesium castings and engine components.
 James Booth & Co. (1915) Ltd., light alloys, copper and brass.
 British Aluminium Co., Ltd., aluminium, etc.
 British Piston Ring Co., Ltd., piston rings and special alloy iron castings.
 British Ropes, Ltd., aeroplane cord.
 British Thomson-Houston Co., Ltd., magnetos.
 Brooke Tool Manufacturing Co., Ltd., metal components and parts.
 Brown Bayley's Steel Works, Ltd., aircraft steels.
 Brown Bros., Ltd., aeroplane parts.
 Bruntons (Musselburgh) Ltd., aircraft steels, steel wire and finished parts.
 Callender's Cable and Construction Co., Ltd., electric cables.
 W. Canning & Co., Ltd., plant and materials for electric plating, chrome plating and anodic oxydation.
 Cellon, Ltd., dopes, lacquers, etc.
 Chance Bros. & Co., Ltd., lights for aerial navigation, aerodrome lighting, etc.
 Chloride Electrical Storage Co., Ltd., electrical accumulators and batteries.
 Charles Clifford & Son, Ltd., sheets, rods and bars in non-ferrous metals.
 Connolly Bros. (Curriers) Ltd., leather manufacturers.
 Dunlop Rubber Co., Ltd., aircraft landing wheels and tyres.
 Elliott's Metal Co., Ltd., brass and copper.
 English Steel Corporation, Ltd., ironfounders, steel makers and engineers.
 Exactor Control Co., Ltd., hydraulic controls for aircraft.
 Thos. Firth & John Brown, Ltd., aircraft steels.
 Firth Vickers Stainless Steels, Ltd., aircraft steels.
 W. T. Flather, Ltd., aircraft steels.

General Fire Appliance Co., fire appliances.
 G.Q. Parachute Co., Ltd., parachutes, etc.
 J. J. Habershon & Sons, Ltd., aircraft steel strip and sheet.
 John Hall & Sons (Bristol and London) Ltd., paint, varnishes, dopes, lacquers, etc.
 High Duty Alloys, Ltd., aluminium alloys, aluminium alloy drop stampings and castings.
 H. M. Hobson, Ltd., carburettors and aircraft engine components.
 Henry Hughes & Son, Ltd., aeronautical instruments.
 Hughes Johnson Stampings, Ltd., drop forgings and valves.
 Irving Air Chute of Great Britain, Ltd., parachutes.
 Jonas & Colver (Novo) Ltd., aircraft steels.
 Kelvin Bottomley & Baird, Ltd., aircraft instruments.
 A. Kershaw & Son, armament and bomb gear.
 K.L.G. Sparking Plugs, Ltd., sparking plugs.
 Light Production Co., Ltd., piston rings.
 Lockheed Hydraulic Brake Co., Ltd., hydraulic brakes.
 Lodge Plugs, Ltd., sparking plugs.
 Ludlow Bros., (1913) Ltd., aircraft material.
 J. Mandleberg & Co., Ltd., airship and balloon fabrics, waterproof fabrics.
 Marconi's Wireless Telegraph Co., Ltd., wireless apparatus.
 Metal Propellers, Ltd., metal airscrews, sheet metal work, pressings, etc.
 Midland Motor Cylinder Co., Ltd., cylinders, pistons, crankcases, etc.
 Fredk. Mountford (Birmingham) Ltd., parts.
 Nobel Chemical Finishes, Ltd., dopes.
 Northern Aluminium Co., Ltd., light alloys, castings, etc.
 Palmer Tyre, Ltd., aircraft landing wheels and tyres.
 R. & J. Park, Ltd., aircraft shippers and packers.
 P. B. Deviator, Ltd., automatic pilots.
 Peto & Radford, accumulators.
 Pinchin Johnson & Co., Ltd., varnishes, paints, enamels, etc.
 Plessey Co., Ltd., wireless apparatus, gun mountings, bomb racks, bolts and nuts, etc.
 Radio Transmission Equipment Ltd., wireless apparatus and navigational aid equipment.
 Reid & Sigrist, Ltd., aircraft instruments.
 Reynolds Tube Co., Ltd., steel tubing, aluminium alloy tubes, bars and sections, magnesium alloy tubes, bars and sections.
 Rotax, Ltd., electrical equipment.
 Rotherham & Sons, Ltd., parts.
 Rotherham Forge and Rolling Mills Co., Ltd., aircraft steels, sheet and strip and drop forgings.
 Rubery, Owen & Co., parts.
 Llewellyn Ryland, Ltd., paints, varnishes, enamels and lacquers.
 Major J. C. Savage, skywriting, aircraft instruments, etc.
 Sereck Radiators, Ltd., radiators.
 Shell-Mex and B.P., Ltd., lubricating oils and greases.
 Short and Mason, Ltd., instruments.
 Siebe, Gorman & Co., Ltd., flying clothing, oxygen breathing apparatus, etc.
 Silvertown Lubricants, Ltd., lubricating oils and greases.
 Simmonds Aerocessories, Ltd., aeronautical accessories.
 Smith's Aircraft Instruments, aeronautical instruments.
 Thos. Smith's Stamping Works Ltd., stampings and forgings.
 Standard Telephones and Cables Ltd., wireless telegraph apparatus.
 Sterling Metals, Ltd., founders.
 Sternal, Ltd., petrol, oils and greases.
 J. B. Stone & Co., Ltd., machinery.
 J. Stone & Co., Ltd., metal parts.
 Tecalemit, Ltd., lubricating equipment.

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[Continued.]

Herbert Terry & Sons, Ltd., steel strip.
 Titanine-Emallite, Ltd., dopes, paints, etc.
 Triplex Safety Glass Co., Ltd., glass, windscreens,
 goggles, etc.
 Vacuum Oil Co., Ltd., oils.
 Venesta, Ltd., plywood.

C. C. Wakefield & Co., Ltd., lubricating oils and
 greases.
 Wellworthy, Ltd., piston rings.
 Williamson Manufacturing Co., Ltd., cinematograph
 and photographic appliances.
 Yorkshire Copper Works, Ltd., non-ferrous metals
 and alloys.

ANNEX B

COUNCIL.

Captain P. D. Acland, Westland Aircraft, Ltd.
 Squadron Commander James Bird, O.B.E., Super-
 marine Aviation Works (Vickers), Ltd.
 Mr. R. Blackburn, Blackburn Aeroplane and Motor
 Co., Ltd.
 Air Vice-Marshal A. E. Borton, C.B., C.M.G.,
 D. Napier & Son, Ltd. (Deputy Chairman—
 Engines.)
 Mr. H. Burroughes, Gloster Aircraft Co., Ltd.
 (Deputy Chairman—Aircraft).
 Mr. R. H. Dobson, A. V. Roe & Co., Ltd.
 Mr. C. R. Fairey, M.B.E., Fairey Aviation Co.,
 Ltd.
 Lieut.-Colonel L. F. R. Fell, D.S.O., O.B.E.,
 Armstrong Siddeley Motors, Ltd. (Chairman,
 Engine Technical Committee).

Mr. John Lord, Saunders-Roe, Ltd.
 Sir Robert McLean, Vickers (Aviation), Ltd.
 (Chairman of the Society).
 Mr. J. D. North, Boulton Paul Aircraft, Ltd.
 (Chairman—Technical Committee).
 Mr. F. Handley Page, C.B.E., Handley Page, Ltd.
 Mr. H. O. Short, Short Bros. (Rochester and Bed-
 ford), Ltd.
 Sir John D. Siddeley, C.B.E., Sir W. G. Armstrong
 Whitworth Aircraft, Ltd.
 Mr. A. F. Sidgreaves O.B.E., Rolls-Royce, Ltd.
 Mr. F. S. Spriggs, Hawker Aircraft, Ltd.
 Mr. H. J. Thomas, Bristol Aeroplane Co., Ltd.
 Mr. C. C. Walker, De Havilland Aircraft Co., Ltd.

January, 1936.

APPENDIX 2

ARMSTRONG SIDDELEY MOTORS LIMITED,
 COVENTRY.

8th February, 1936.

The Secretary,
 Royal Commission for the Private Manufacture of
 and Trading in Arms,
 Middlesex Guildhall, Westminster,
 London, S.W.1.

DEAR Sir,

It is regretted that when giving evidence yester-
 day before the Commission, I used the words
 "export licence" in an incorrect sense. What I
 intended to convey was that the sale of Panther
 engines to Germany was made with the full know-
 ledge and consent of the Government. A Board of
 Trade Export Licence was not necessary as aircraft
 engines are open export and therefore there was
 no prohibition.

The engines were produced to the Customs before
 shipment in the ordinary way. The consent of the

"S" Branch at the Air Ministry was obtained
 before the sale was made, and we informed the
 "S. 9" Branch from time to time as the engines
 were despatched from the Works.

For your information, the engines were supplied
 to the order of Allgemeiner Elektrizitäts Gesell-
 schaft.

As an indication to you of the technical standard
 of these German engines, I would like to point out
 that the rating was 597 HP maximum. The present
 day rating of this same size of engine after re-
 design to bring it up to modern requirements is
 732 HP maximum.

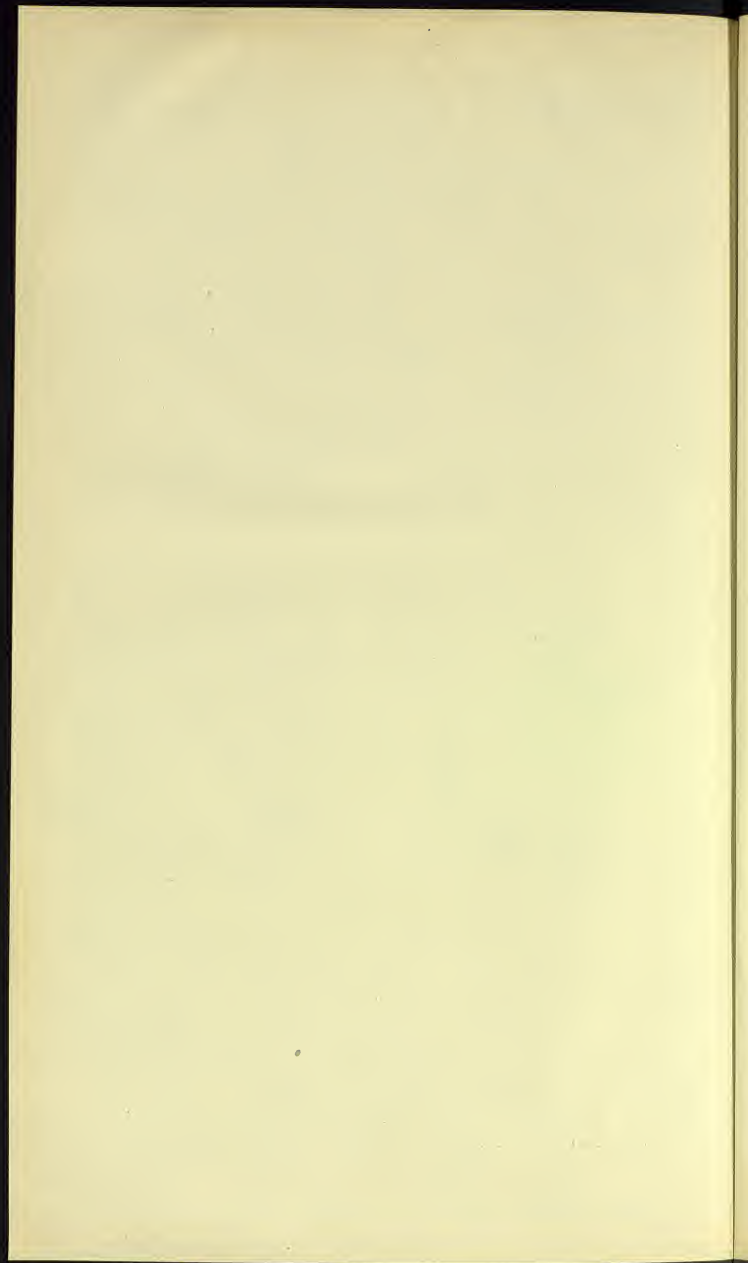
Trusting that the above information will clear up
 any misunderstanding which I may have produced
 in the minds of the Members of the Commission.

Yours faithfully,

Armstrong Siddeley Motors Limited.

(Sgd.) L. F. R. Fell.

Chief Engineer, (Aircraft Engines).



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

18

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

EIGHTEENTH DAY

WEDNESDAY, 6TH MAY, 1936

WITNESSES—

The RIGHT HON. DAVID LLOYD GEORGE, O.M., M.P.

CAPTAIN L. E. H. LLEWELLYN, C.B., O.B.E., R.N. (Retired)

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

EIGHTEENTH DAY

Wednesday, 6th May, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

The Right Honourable DAVID LLOYD GEORGE, O.M., M.P., called and examined.

3861. *Chairman*: Mr. Lloyd George, you have been good enough to come here to give us the benefit of your experience and your views. I understand that you have prepared a short statement. Would it be convenient that you should read that to begin with?

Mr. Lloyd George: I am entirely in your hands, Mr. Chairman.

3862. *Chairman*: And then we can ask any questions that occur to us.

Mr. Lloyd George: Shall I read it?

3863. *Chairman*: Yes, please; unless you would like somebody to read it for you.

Mr. Lloyd George: I think I will read it. I may say at the outset that I am in general agreement with the very powerful statement made by Mr. Noel Baker, and corroborated by Dr. Addison, as to the undesirability of allowing the manufacture of arms by private firms. I am definitely of the opinion that it ought to be a government monopoly. I will just give a short summary of my reasons.

The first will be political—to avoid the creation of powerful vested interests whose prosperity depends upon war and preparation for war.

The enormous increase, amounting to tens of millions in a few weeks, in the value of the properties of the armament firms in this country, upon the intimation of a programme of rearmament on a great scale by the government, is in itself a startling demonstration of this peril. These concerns are no longer the property of a limited number of partners, but thousands, may be scores of thousands of shareholders—perhaps more—spread all over the country, either hold or deal in their shares.

Rearmament doubles the value of the holding of every shareholder. Disarmament would either halve it or reduce it to nothing. It is not a healthy state of things in a community when a large, and on the whole, influential body of men, scattered all over the kingdom, should have a direct pecuniary interest in war or agitations which lead to war.

Secondly, there is a good deal of direct, and even more indirect, propaganda conducted by these enterprises. Sometimes it takes the subtle form of inculcating the horrors of war with suggestions that we must prepare to protect ourselves against them. It more often takes the form of an exaggeration of preparations made by other countries, with more than a hint that these preparations are directed against our security.

The pre-1914 government, of which I was a member had an illustration of the latter method.

We all remember the Dreadnought panic. The naval programme of Germany was exaggerated in the press and on the platform. There was an exaggeration as to the number of ships being built and the size of the guns. The advice given the Cabinet as to the importance of small craft rather than monster ships was deprecated. There was a great agitation in this country for an immense programme for the building of huge battleships and battle cruisers. The Cabinet was divided about the need for building so many of these costly ships because some of them took the view held by so many Admirals at the time that what we stood most in need of was small craft.

A Cabinet committee was appointed to investigate all the facts with regard to German shipbuilding and German guns. The armament firms tendered evidence which was in their possession based on secret information which they had received—all of the most alarmist character. They had already passed it on to the Admiralty. This information demonstrated that the Germans were laying down ships considerably in excess of their published statutory naval plan. There is no doubt that this evidence influenced the Cabinet. It turned out to be completely inaccurate. But it diverted the Admiralty from the building of the small craft essential for our commerce, into constructing the biggest of big ships. There was much more profit in the building of these gigantic ships with their monster guns. A torpedo boat destroyer would only cost about one-twentieth of a battleship.

This kind of propaganda is very insidious. The public have no protection against it. In the case I quote the public did not even know that the information upon which we proceeded was largely supplied by representatives from armament firms who were pecuniarily interested in the panic which was created. I have no doubt at all that the information given to us as Ministers was also communicated to politicians outside and to the press. From all I hear, the armament interests in France are just as active on the same lines to-day, although the methods they adopt are even more pernicious. To what extent German armament interests influence German opinion I have no information, but I have no doubt they are equally mischievous there.

But I have practical reasons from the point of view of the efficiency of national defence why the present system is a bad one. But before I come to deal with that aspect, perhaps Members of the Commission would like to ask me some questions on the first part of my case. Or shall I go on?

6 May, 1936.]

The Right Hon. DAVID LLOYD GEORGE, O.M., M.P.

[Continued.]

3864. *Chairman*: I think it would be better to go on.

Mr. Lloyd George: Now I come to what I conceive to be the practical reasons why the present system does not contribute to efficiency.

There must always be a minimum of armaments below which it is not safe for us to sink in an armed world. If you under-insure, you are taking unjustifiable risks in an incalculable international situation, and if I may say so here, a situation which, judging from reports in the press, is aggravated by the fact that peace is disturbed by the capable, and defended by the feeble-minded. On the other hand, if you over-insure, you are incurring unnecessary expenditure which is unproductive in so far as it is not essential to protection and you are also provoking a competition in armaments which leads to fresh expenditure and endangers universal peace.

But past experience demonstrates that you cannot altogether rule out of account sinister contingencies, however improbable they may be at the time. In 1914 few anticipated a world war. I cannot recall one who ever thought it possible we should have to send an army of several millions across the seas to fight in three continents. As a matter of fact we levied and trained millions of men, but they were not fully equipped for battle for nearly two years. The War has taught us the importance of being ready for all contingencies, to the extent of being in a position to put all our manufacturing resources into operation as soon as war is declared. When you contemplate the possibility of another great war, what matters most is the facilities we possess for speedy expansion on the most effective lines. Here nationalisation of armaments has an enormous advantage over private firms. When in 1914 it came to the need for increasing our supply of munitions on an enormous scale, private firms broke down completely. And in war time is often decisive. If war comes, there should be no delay beyond what is inevitable in the provision of all the necessary equipment for carrying it on effectively.

What were the principal causes of the delay in the Great War?

(1) Designs, patterns and specifications of essentials were not ready.

(2) Even when the designs were there, we had not sufficient gauges for accurate manufacture and that is all important. The shortage of gauges accounted for months of delay.

(3) We had no survey of the available machine tools in this country and, if we had, there was nothing like a sufficient number to meet the demand. They took months to manufacture even with the aid of America.

Until we received those machine tools, we could not begin the manufacture of our guns, for instance, and we had to wait for months until they were supplied. I am blaming no one. No one had contemplated a war in which we would be called upon to play so vast a part on land.

Had we possessed such an organisation as Sir Eric Geddes indicated very clearly in his evidence before the Commission, if our designs had been prepared, if we had had an adequate supply of gauges and machine tools ready to hand out to the producers, we should have saved several months—not far from a year.

You may say that it would involve heavy expenditure in peace time. Not at all. For a few hundred thousands—certainly a very few millions—it is wonderful what you could accomplish on these lines.

These essential preliminaries did not cost us much in money—not directly. On the other hand, their absence cost us immense sums and many hundreds of thousands of deplorable casualties.

All this important question of design involves constant research and experiment.

Then the question may be asked: Why cannot private firms prepare designs, patterns and specifica-

tions, and engage in research and elaborate experiments just as well as the state? One reason is that it would land them in expenditure on a great scale with only problematical commercial results. Where there is no prospect of immediate results, where the application of these things may be postponed to a remote or an indefinite period, it is not worth their while incurring all this capital expenditure in preparations. It is only a war or a war panic that would pay them for efforts which alone would in practice prove equal to the need. They are trading concerns for profit. The state, on the other hand, has to take precautions for contingencies that it is doing its best to avert and to prevent from ever arising without reference to trading profit.

Take the cost of experiments. I will take, for instance, tanks. In the final stages of the War they played almost as great a part in ensuring us victory as any other weapon. I do not think that I would be far wrong in saying that they played a greater part in the last few months of the War than any other particular weapon. But they are a comparatively new contrivance and a long way off reaching perfection. Those we used in 1918 were a wonderful invention but they were crude and clumsy in comparison with their successors of to-day. The casualties amongst them in 1918 were exceptionally heavy. I mean not merely the casualties among the men who were manning them, but the casualties among the machines. In 1918 they were exceptionally heavy and, I think, before that. At the famous battle of the 8th August, 1918, 60 per cent. of them were put out of action and anti-tank devices had then hardly had time to develop.

Constant experimentation is essential if we are ultimately to work up a machine that will overcome traps, anti-tank guns and other counter-measures. Now this is the point I wish to make, and I think you will find that it is relevant to the subject matter of your inquiry. To carry out these experiments, large tracts of land of every kind and conformation must be available. It would not be possible for private firms to command sizeable and suitable terrain. The government is equipped with the necessary powers—and where necessary the capital—to provide the ground for experimenting, and every kind of ground which is vital to experimentation of a weapon of that kind which is going to become—which did become, as a matter of fact, especially in the last year, about the most important weapon in the War.

Then if war ensues and expansion becomes necessary, there are serious labour difficulties to overcome when manufacture is in the hands of private firms—and even when manufacture is in the hands of the state—in dilution of skilled labour with unskilled and the training of unskilled men and women. For expansion of production on such a vast scale that you would need in a war such as the last war, the number of skilled workers in this country is quite inadequate. There must therefore be a dilution of skilled with the unskilled and a training of men and women for jobs hitherto undertaken by skilled craftsmen organised into powerful unions. During the War the unions were prepared to suspend their privileges for the country's needs, but they were most reluctant to make the same concession to private firms whose profits were swollen by the transactions. I am not passing any comment one way or the other on their attitude. There is much to be said for it. But I am stating a fact with which we had to deal in the last war, and if ever we have another war, you will be confronted with it again. The adjustment occupied a great deal of valuable time and gave recurrent trouble, and most of it occurred in consequence of the objection on the part of the unions to suspend and perhaps jeopardise privileges that it had taken generations for them to win, in order to enhance the profits of private individuals. They never raised the objection in so far as it applied to state organisations. But they were involved in the general consideration of manufacture by private as well as by national organisations—you could not

6 May, 1936.]

The Right Hon. DAVID LLOYD GEORGE, O.M., M.P.

[Continued.]

relax it for one without doing it for all of them. That is a very very important factor which I beg you to have in mind, because I know how long it took to settle that business and how it caused constant trouble during the War and, to a certain extent, impeded the output of munitions of war when time was very vital to this country.

America is an admirable illustration of what the system of private manufacture in the event of war can and cannot do. America, I suppose, is the greatest manufacturing country in the world and we all anticipated that when America came into the War she would show us an example in the speed and the efficiency with which she would turn out munitions. That was not the case. The manufacture of munitions was left largely in the hands of private firms. After 18 months of war, the Americans had no guns, heavy or light, of their own, they were dependent upon the French and upon ourselves, and their aeroplanes only came in two or three months before the armistice. We had to supply them with all those weapons and with things like field kitchens. And yet America is the greatest manufacturing country in the world. They wasted their time on devising new patterns which could have been instituted and perfected without very much cost by state arsenals before the War and could have been put in immediately after war began and turned out in great numbers had the specifications and the jigs and gauges been prepared.

As a matter of fact, both here and elsewhere, private manufacture completely broke down in the War. Orders were given on a great scale but not fulfilled. It is a lamentable story of the failure of private enterprise in the furnishing of munitions of war.

Dr. Addison has given you the figures of the promises and performance of the first few months of the War, and they are very striking. No one who peruses them will fail to realise why we were not only unable for nearly two years to make any attack upon the German trenches without appalling losses, due to lack of artillery and high explosives, but, moreover, our troops had not enough ammunition to defend themselves in their own trenches by retaliating upon the enemy's guns, although promises were quite adequate to supply us with a very fair amount of ammunition. Whilst promises of this kind were given to us heedless of any reckoning as to the possibility of executing them, similar undertakings were given to the Russians with even worse results. Enormous orders for every kind of ammunition were booked by Russia with our armament firms, notably one firm. Not even an appreciable percentage of the obligations undertaken was ever discharged. The Russians depended upon them, waited for them, and found themselves with no means of defending their lives against the terrible German guns which poured shot and shell upon them. The feeling against the British firms, as I know, was exceedingly bitter in the Russian army and I am not at all sure that you will not find something of it in General Knox's book, but certainly in General Knox's despatches, and he was with the Russian army representing us. The failure was attributed to breach of faith by the Russians and there is no doubt it contributed partly to the Russian collapse and the Russian disengagement with the Allies, which was very serious. I have no doubt at all that the contracts which were accepted were entered into in perfect good faith by our firms. There was no breach of faith in the contracts entered into, either with our own government or with the Russian government, but I do not think they realised the difficulties and the limitations of a private firm under such conditions. The armament firms depended upon a system of peddling out. They knew they could not do it themselves, so they peddled out part of the work to other engineering firms all over the country engaged on civilian work which had to be suspended owing to the War. But they had not

the authority which a government necessarily has of securing the co-operation of these other firms. And, moreover, it is no use pretending that a great armament firm is not particularly anxious to encourage other firms to start on profitable business which might, in the end, result in the establishment of formidable rivals. So the peddling out was done with a good deal of businesslike caution. When the government took in hand the organisation of all our engineering resources for the production of munitions, we had no difficulty in securing the fullest co-operation and the largest output under complete government control.

Those are some of the ordinary difficulties. I thought I would just make that statement as a general indication of my line.

3865. *Chairman*: Thank you, Mr. Lloyd George. If I may I would like to ask some questions upon this statement. You began by saying you were wholly in favour of state monopoly in the manufacture of arms.

Mr. Lloyd George: Yes.

3866. *Chairman*: Would you extend that state monopoly to all branches of arms and munitions? Take, for instance, ships: Would you extend the monopoly to battleships? We will take another— aeroplanes. Would you extend it to all classes of manufacture or only to limited classes of manufacture?

Mr. Lloyd George: I would go as far as it is practicable to go in that respect. I think the less you leave to private manufacture the less is the incentive to promoting agitation for war. You might find that it would not be practicable immediately to go the whole way, but I would go as far as it could be accomplished.

3867. *Chairman*: Of course, that is what we are trying to find out, how far it is practicable, and whether it is at all practicable with regard to ships or aeroplanes and engines. However, your answer is that you would go as far as is practicable.

Mr. Lloyd George: Yes.

3868. *Chairman*: The next question I would like to ask about the monopoly is this: To make a monopoly effective must you not really go as far as having complete nationalisation, not only of the manufacture but of the raw material?

Mr. Lloyd George: No, I should not say that. During the War we had to do it.

3869. *Chairman*: Yes.

Mr. Lloyd George: We had practically to assume control of all the raw material and to distribute it according to the necessities of the time.

3870. *Chairman*: But if it is a fact that you had to do that in the War—you arrived at complete nationalisation in the War—in order to make your monopoly complete does not the same argument apply to peace time?

Mr. Lloyd George: I do not think so, not necessarily; because you are not working under the same pressure. You see, time counted there. And besides, there was hardly any private manufacture except for the most urgent needs of the nation. In that case there was no real competitive production.

3871. *Chairman*: I wonder if you would look at the matter from this point of view: Whether or not the most effective policy to adopt from the point of view of national defence is to adopt a policy of private manufacture working in collaboration with government arsenals and government manufacturing places. Take, for instance, the case at the present moment of the manufacture of a battleship in government dockyards. A great portion of that battleship—if I may use the word "portion" having reference to all the complements—is acquired from private manufacturers and put into the ship by the government. You have there a case of the government working in collaboration with private manufacturers.

6 May, 1936.]

The Right Hon. DAVID LLOYD GEORGE, O.M., M.P.

[Continued.]

Mr. Lloyd George: You mean, for boilers and things of that kind?

3872. *Chairman:* All the fittings of the ship.

Mr. Lloyd George: Fittings, yes.

3873. *Chairman:* And the guns, I suppose?

Mr. Lloyd George: No, not guns. I can well understand fittings.

3874. *Chairman:* Engines?

Mr. Lloyd George: Engines, yes; not guns.

3875. *Chairman:* Take the engine: That is a very important part of the ship?

Mr. Lloyd George: Yes, I agree.

3876. *Chairman:* That works very efficiently and is unobjectionable from any point of view, is it not, that the private manufacturers should assist the government to the extent and in the same sort of way that they are doing with regard to the building of battleships?

Mr. Lloyd George: Yes, I should say it is inevitable. This is how I would put it, that you must depend largely upon private manufacture for the supply of certain essentials.

3877. *Chairman:* I come to another question, from the same point of view. Supposing, for instance, a system were adopted of private manufacturers working in collaboration with the government arsenals and so forth, none of the evils that result from the private trade in arms would arise, would they? These evils that are spoken of arise, not from the private manufacture, but from the private trade in arms.

Mr. Lloyd George: Surely the incentive to profit is what you have got to eliminate, because if you have got the inducement of profit for people to encourage panics and agitation and wars and preparations for war, as long as that lasts you have an element of danger in a community, which, I think, ought to be eliminated.

3878. *Chairman:* Yes, but take the question of profit. It goes very deep. Because the persons who are interested in the supply of the raw material are just as much interested from their point of view in the demand for their goods which arises from the threat of war or actual declaration of war. You cannot eliminate that objectionable element of profit by merely attaching it to the completely lethal weapons?

Mr. Lloyd George: You cannot eliminate it altogether, I agree, but there are groups whose business depends practically upon war preparations. Take the other firms, they are firms the major part of whose business is in the production of commodities which are useful for peaceable purposes. I draw a very great distinction between them, whether in the output of raw material or in the output of engines. In all those cases it is just a part—sometimes a small part—of their business, and the major part of their business is in turning out articles or machinery for producing material for peaceable ends. You cannot altogether eliminate the element of profit as long as you have the present system of private enterprise in this country. That is why I use the words "as far as practicable, I would do it." The greatest danger at the present moment is that you have firms the existence almost of which depends upon war preparations, and those are the firms, both in France and elsewhere, who are taking a leading part in these agitations. We never had any evidence from people who turned out raw material and engines in 1908. All the evidence that was gathered together was by armament firms whose business depended upon turning out huge guns.

3879. *Chairman:* You say, "There is a good deal of direct and even more indirect propaganda conducted by these enterprises." The enterprises are the private manufacturing firms?

Mr. Lloyd George: Yes.

3880. *Chairman:* You say: "Sometimes it takes the subtle form of inculcating the horrors of war with suggestions that we must prepare to protect ourselves against them." Then you give the one illustration about the Dreadnought case. I will deal with that in a moment. Have you any other instance in your

mind? I am not speaking of what happens abroad, because we cannot deal with that, but in this country have you any other instance in your mind?

Mr. Lloyd George: Not one within my own knowledge, upon which I could really give evidence. I have a great many cases where I have been told about things, but I do not want to repeat that, because I could not prove it. But there is a case that came within my own observation.

3881. *Chairman:* We will deal with the Dreadnought case. That has been referred to here before as the Mulliner incident.

Mr. Lloyd George: Yes. Mulliner was not the only one, but he was the worst, I agree.

3882. *Chairman:* Dealing with Mulliner, we have been told that the information that Mulliner got was information which he obtained in Germany by going through Krupps' works, as I understand, in which he saw that preparations were being made to lay down plant for erecting permanent gun mountings—if that is what they call them—greatly in excess of what were needed for the then published German programme, and that the fact that this plant was being laid down would enable the German government, if they thought fit, to produce battleships at a very much quicker rate than any other country which had not the same facilities; and that he conveyed that information to the Admiralty. Do you suggest that the information that he gave was inaccurate? Because we are told that it was strictly accurate.

Mr. Lloyd George: The impression he gave was that the Germans were going to build at a greater rate than that which they laid down in their naval law.

3883. *Chairman:* Yes, but that was the inference that he drew from seeing these preparations being made for the erection of this plant.

Mr. Lloyd George: Whatever the inference was, that is the statement he made, and that was the impression he left on the Cabinet, that we should be confronted with so many German ships in about—I forget whether it was two or three years—that we should be in a minority. It turned out to be absolutely inaccurate. It was untrue.

3884. *Chairman:* What I want to know is this: Do you challenge the fact that he did see this plant in course of erection and that he drew an inference from it and he conveyed that inference to the Admiralty?

Mr. Lloyd George: I cannot tell whether he saw it or whether he did not see it. All I know is that the evidence he gave us was untrue.

3885. *Chairman:* What was it he said that was untrue?

Mr. Lloyd George: What was untrue was, that the Germans could produce in whatever the number of years was—I think it was two; and meant to produce, so many ships of that size that we should be in a minority by, say, 1912, or 1913, whatever was the date.

3886. *Chairman:* Yes, but we are informed that he gave the actual fact of what he had seen and he told you the inference he drew from it—it was for you, or the people to whom he gave the information, to say whether the inference was justified or not—but that he did not give any false information. He may have drawn a wrong inference and you may have followed his wrong inference.

Mr. Lloyd George: No, no. It was not a question of inference at all. We were not depending upon inferences. We were depending upon definite evidence. After all, it was a responsible Cabinet committee, and he stated as a fact that the Germans were preparing and were in a position to add to their fleet so many ships that we should be in a minority by a given date. It was absolutely untrue. What were his grounds for it is another matter. He may have given his reasons for it. I have no doubt he did. But he stated that as a fact.

3887. *Chairman:* We are also told that there was a Cabinet inquiry made as to whether what he stated

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was accurate or not, and the facts that he had stated—I am saying nothing about the inferences—were corroborated and found to be true.

Mr. Lloyd George: That is not my recollection—certainly not; and as a matter of fact it turned out to be inaccurate, and that is what I want to point out.

3888. *Chairman:* What turned out to be inaccurate was that the Germans did not ultimately do what people thought they were going to do. People thought wrongly.

Mr. Lloyd George: No, no. As a matter of fact they could not have done it. Nobody could have turned out a battleship in less time than we took at that time, and therefore what he said was not a fact.

3889. *Chairman:* That is what Mulliner was challenging. He was saying that the Germans had provided themselves with plant which would enable them to do it more quickly than we did it.

Mr. Lloyd George: Well, it did not; that is the fact; and therefore it was untrue.

3890. *Chairman:* I will ask another question about Mulliner. This is a sort of ethical question. Supposing a person who is engaged in an armament firm finds out a fact which is of great importance from the point of view of national defence, ought he to keep it to himself because he is a member of an armament firm, or ought he to tell his government a fact which it is of real and vital importance that they should know?

Mr. Lloyd George: I think it is his duty undoubtedly to inform the government of the day. But that is not my inference. My inference is that Mr. Mulliner was working up an agitation purely in order to get big orders for the armament firms. I made that suggestion definitely. And it turned out to be so.

3891. *Chairman:* With regard to the practical point of view, I would like to ask some questions, if I may. The experience of the Great War has wholly altered the view, has it not, from the point of view of national defence, of what is necessary to be done by way of preparation?

Mr. Lloyd George: Oh, undoubtedly.

3892. *Chairman:* In two main features. First, the quantities of arms and munitions of war that are required—

Mr. Lloyd George: Yes; certainly.

3893. *Chairman:* And, secondly, the necessity for rapid expansion?

Mr. Lloyd George: I agree.

3894. *Chairman:* Those are the two main alterations, from the point of view of the experience that we have gained from the last war, are they not?

Mr. Lloyd George: There is a third, of course—and you must not leave that out of account—the susceptibilities of labour. That is a very important element.

3895. *Chairman:* I agree. I include that in rapid expansion.

Mr. Lloyd George: As long as it is definitely mentioned.

3896. *Chairman:* Oh, yes; certainly. With regard to the private firms breaking down: They broke down because they were not prepared for the emergency. Is not that so?

Mr. Lloyd George: No. I do not agree. I do not believe they would ever have recovered if the government had not taken them in hand.

3897. *Chairman:* I agree; but take the initial failure.

Mr. Lloyd George: No private firms could possibly have coped with that emergency. They could not have done it.

3898. *Chairman:* That is what I say. They were not prepared.

Mr. Lloyd George: No. If they had been prepared, they could not have done it. They could not have had the necessary control. Supposing you had given them 12 months' notice, they could not have done it.

3899. *Chairman:* Supposing there had been no private manufacture at that time, that there had been a government monopoly, that would have failed for the same reason as private manufacture. They were not ready.

Mr. Lloyd George: I do not agree, if I may say so, Sir John.

3900. *Chairman:* We are simply asking for information.

Mr. Lloyd George: As a matter of fact, the Admiralty and the War Office were depending upon private firms. They had always depended upon them and when they gave an order to a private firm they said "That is all right." If it had been left entirely in the hands of the government, they would not have done that. It would have been their responsibility, not merely to give an order, but to see that it was executed and to take steps for its execution. I do not think you would have had all those months in which we got only about one-third, or less, of our orders delivered if the government had had the direct responsibility at the outset of the War. Because you would have had reports constantly coming into the Cabinet: "Here are two million shells that ought to be delivered and they have delivered only 500,000." I am certain they would have taken the matter in hand. No; I do not think it would have happened. The fact is that there was a dependence upon private firms by the officials of the War Office and the Admiralty, a dependence which up to that date was more or less justified. I am assuming that. No; I think it was due to the fact that you had to depend so much upon private enterprise for the provision of all these munitions.

3901. *Chairman:* There must have been an equal failure unless the state had an organisation that was in existence and from every point of view superior to the private firms; they must have had the same difficulty.

Mr. Lloyd George: No. I have been through this, if you will allow me to say so, and therefore I can tell you something about it. That is not in the least the case. If it had been in the hands of the state, they would not have waited about nine months before they began the manufacture of gauges and jigs and patterns and specifications. They would have appointed a minister who would have been directly responsible. They would have been equally unprepared at the beginning, I agree, but they would have begun their preparations before the month of May, 1915.

3902. *Chairman:* As long as we are agreed that they would have been in an equally difficult position at the beginning.

Mr. Lloyd George: At the outset; oh, undoubtedly. I have already said in my document that nobody anticipated we should send an army of millions across the seas. Therefore, there was no reason why we should have had those preparations. But we would not have postponed the preparations months and months had we not depended upon private firms who, we assumed, knew all about it.

3903. *Chairman:* Upon the question of whether it would be a good system for the private firms to work in collaboration with the government: We are told, in the case of Vickers, for instance, that before the War, Vickers had been receiving a very large number of orders from the Admiralty and that, as a consequence, they were quite fully equipped and prepared to deal with Admiralty requirements, and that, when the pressure came, they were prepared and did, in fact, deal with the Admiralty requirements without any complaint; but that, with regard to the army requirements, they had had very few orders before the War, they were completely unprepared to deal with the class of work that the army required and that, therefore, there was a failure. Is the proper inference from that that you would, and did, get great assistance from the private manufacturer in case of emergency,

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if that manufacturer was prepared for the emergency?

Mr. Lloyd George: I do not think the private manufacturer could prepare for the emergency unless the state undertook those preparations. Sir Eric Geddes has pointed that out in his evidence, that the whole expense of the preparations must be incurred by the state and not by the private manufacturer, because he cannot go on spending enormous sums of money making preparations for a business that might never come, or might only come in 10, 15 or 20 years, and, therefore, it is the state that has to make preparations and not the private manufacturer.

3904. *Chairman:* Yes, but those preparations, of course, would be preparations under the headings which you have specified—designs, patterns and specifications, gauges and so forth.

Mr. Lloyd George: And machine tools.

3905. *Chairman:* Yes, and machine tools.

Mr. Lloyd George: That is a very, very important matter. Vickers had not the necessary machine tools to manufacture guns.

3906. *Chairman:* And, of course, the necessary ground for testing guns?

Mr. Lloyd George: And the necessary ground; perhaps for tanks more than guns. Some of them have ground.

3907. *Chairman:* Supposing the government decided to make all these preparations and adopt some sort of system such as Sir Eric Geddes suggested and such as has been suggested by Dr. Addison and others in regard to the production of munitions, would it not be of great assistance if they had a number of efficient private manufacturers to do the work and with the necessary trained personnel?

Mr. Lloyd George: I do not see why the state cannot train personnel just the same as private manufacturers, at Woolwich. We had to depend a great deal upon Woolwich for our technical knowledge and skill, and that was not private manufacture at all.

3908. *Chairman:* No; but the more Woolwiches you had, the more material you would have to draw upon in order to get the rapid expansion that you want.

Mr. Lloyd George: I know, but I am assuming that the whole manufacture of arms is in the hands of the state. You would, therefore, require exactly the same number of men and the same amount of skill in the state arsenals as you have at the present moment in Vickers-Armstrongs, but, in addition to that, you would have a reserve of jigs and gauges and patterns and machine tools and greater opportunities for experiment than private firms would have. You would have exactly the same number of skilled men, and more, because a great number of them would be engaged in making patterns which were not going to be put into operation immediately.

3909. *Chairman:* Supposing you confine your personnel to state personnel and you get a long period of peace, at what are those men to be employed? Of course, if you have private manufacturing firms, they can turn their men on to civil work, but you cannot turn your state men on to civil work. That would not be allowed, would it?

Mr. Lloyd George: After all, a skilled engineer who is engaged upon the production of machinery and all the various articles upon which engineers are engaged, is a first-class man to be drawn upon in emergency. You want a certain number of pivotal men who have made a special study of one particular art. But the rest of the men can be adapted in a very short time, as long as they have engineering skill. It does not take long. Our difficulty was that we had not skilled engineers. A skilled engineer can adapt himself in a very short time to any form of production, so long as you have the pivotal men, and you would have the pivotal men if you had state arsenals.

3910. *Chairman:* You say that you cannot expect private firms to expend money on experiments or to

provide designs, patterns and so forth. What about the Air Force? I will not say the whole, because we know there has been a government department dealing with research and so forth, but the great bulk of expenditure on research and experiment and so forth, as regards the Air Force and its development, has been made by private manufacture, has it not?

Mr. Lloyd George: I am told that the amount of research and experiment that you make upon civilian machines is not essentially helpful when you come to consider a machine for military purposes, that it is quite a different business and that a civilian machine cannot be very readily adapted for military use. If that is the case, then the amount of research and experiment that you get from the others is only with regard to the improvement in your machines. If there is improvement in a machine, the state has a perfect right to utilise that for military purposes, whether it is discovered in a civilian factory or in a military factory.

3911. *Chairman:* Yes, but private firms have been spending money on research with regard to military machines up to the present, have they not?

Mr. Lloyd George: I am not quite sure about that, but at any rate, they would go on still. As a matter of fact, more money could be spent upon research and experiment for a military machine if the production were purely for military purposes.

3912. *Dame Rachel Crowley:* If I understand the points that you are trying to make us see to-day Mr. Lloyd George, they are these: You are against private manufacture mainly for two reasons; one, that you think it unethical and unwise that the prosperity of a very large number of people, hundreds of thousands, should depend on war material dividends. That is your first point, I think.

Mr. Lloyd George: That is so.

3913. *Dame Rachel Crowley:* And your second point, if I understood it rightly, was that you think private manufacture really gives a false guarantee of security both to the government and to the people?

Mr. Lloyd George: Yes.

3914. *Dame Rachel Crowley:* Those are your two main points?

Mr. Lloyd George: Yes. I think that is very well put, if I may say so.

3915. *Dame Rachel Crowley:* I would like to turn from that to what you said about the private manufacturers breaking down in war time and their orders not being fulfilled. If I understood the Chairman, he suggested that the orders were not fulfilled because there was such an enormous demand that no one, either government or private manufacturer, could have foreseen what was needed. But that does not seem to me to explain altogether why the private manufacturers took on such large contracts as they did.

Mr. Lloyd George: I agree.

3916. *Dame Rachel Crowley:* I should like to hear your opinion on that, if I may. I would also like to know whether the contracts they took on with Russia, to which you referred, were taken on after they had already realised, or you had already realised, that they were unable to fulfil their contracts with us. If you would not mind speaking to those remarks of mine, to begin with, then I have several questions arising from them.

Mr. Lloyd George: I quite agree that they ought to have known what was their capacity before they undertook enormous contracts of that kind. For instance, when they took on contracts for four million odd shells—I am taking Dr. Addison's figures—and delivered only a little over one million, surely that was a miscalculation. That was thoroughly bad business. They ought to have known. They ought to have told the War Office. They ought to have said to the War Office: "We cannot do it." Then the War Office would have been confronted with the obligation of finding some other means of doing it, and I have no doubt at all they would then have taken counsel with the rest of us

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for it to be done. Supposing they had come along and said: "We want four million shells by such and such a date; private manufacturers have said they cannot possibly deliver more than a million." We would have realised at once how serious was the position and we would have taken counsel with everybody who could possibly have advised us as to what we ought to do, and we would have done what we did subsequently, in May, 1915. We were never told. I think the contracts with Russia, for the most part, were taken at the same time as the orders that were given by us, but some were very much later, and during the Russian retreat in 1915, and afterwards in 1916, the Russians were always alluding to the fact that Vickers had failed them. See what happened when we came to public manufacture. Here I am speaking from experience. I had a list of the promises given me, whether by national arsenals or by private firms. They were set out for us and I had them printed. At the end of each week I examined the actual deliveries. One saw, for instance, that one firm promised to deliver 20 guns and they delivered only 5, and so on. It was the same when you came to shell. Instantly you called attention to it, you found out the reason. Sometimes they would say to you: "We have not the necessary machine tools." "Very well, we will send over orders to America or to the machine tool manufacturers." We said: "Cannot you do something to improve the situation?" Week after week we knew the position. We never waited five or six months to find out and to report to the War Office; we knew it each week because the output was a government responsibility. It was not the responsibility of private firms. That is the way we were able to correct it, and gradually promises and performances more or less conformed to each other. But it was due to the fact that each week we compared them and, when there were any deficiencies, we tried to find out what was the matter. We could not get iron and steel, or we could not get some other material. Instantly we communicated with the people who produced that deficiency. It is only a government department that could do that, because we were in a position to be able to communicate with everybody. A private firm could not do it. They have not the same authority as a government department. That is why we were able to do it so much more rapidly after the government had undertaken the responsibility of manufacture than before. What was the other question that you put to me, Dame Rachel?

3917. *Dame Rachel Crowdy*: You have really answered my question. I would like to go on to a rather different subject. After all, arms were not the only things required in the War?

Mr. Lloyd George: No.

3918. *Dame Rachel Crowdy*: I should like very much to know how the other private manufacturing industries compared with the arms industry. For example you had khaki turned out in enormous quantities, you had rations prepared in enormous quantities, boots, saddles. Did the firms that undertook to supply the army with those fulfil their contracts or did they fail to the same extent?

Mr. Lloyd George: I am not in a position to answer.

3919. *Dame Rachel Crowdy*: It would be an interesting comparison if we could find out.

Mr. Lloyd George: I quite agree.

3920. *Dame Rachel Crowdy*: I wondered whether it was only in regard to arms.

Mr. Lloyd George: I am not in a position to answer that question.

3921. *Dame Rachel Crowdy*: I suppose the reason for which the Ministry of Munitions was set up was, really, that the private manufacturers had failed.

Mr. Lloyd George: Oh, yes, very largely, undoubtedly.

3922. *Dame Rachel Crowdy*: When you set up the Ministry of Munitions—we know that no one can tell us more about it than you—were you helped or were you hindered by the private manufacturers?

Mr. Lloyd George: I was not conscious of any hindrance on their part. I must say that. When they were sent for I think they did their best, afterwards, because they felt that really we could help them in ways where they themselves had experienced the deficiencies before. No, I cannot say that they hindered us. On the contrary, I think they did their best.

3923. *Dame Rachel Crowdy*: Did you come across at all, what Dr. Addison mentioned to us in his early evidence, cases where supplies were not sent sufficiently quickly until the prices asked for by the private manufacturers were agreed to by the government? Did you have any cases of orders held up until you would agree to certain prices, at the beginning of the War?

Mr. Lloyd George: I had nothing to do, during the first nine months, with the actual ordering of these goods—certainly not with the execution—so I cannot tell what happened then. All I know is that there were deplorable deficits in the execution of contracts. Whether anything of that kind arose I do not know. It did not come within my purview.

3924. *Dame Rachel Crowdy*: You do not regard that as one cause of the delay in the fulfilment of contracts?

Mr. Lloyd George: I have no evidence of it, and therefore I think I had better not speak about that.

3925. *Dame Rachel Crowdy*: We have heard from a good many witnesses who have been in favour of private manufacture that one reason for which private manufacture must continue is that research and invention are so much more encouraged and so much better rewarded in private firms than they are within any government section of armaments. I wondered whether you could tell us anything about that. I have been lately considering the various armament inventions which I myself came across during the War and I have been wondering how many of them were due to the big private arms manufacturers and how many were really invented by service people or by private individuals. It is an argument that has been addressed to us again and again. Four things occur to me: First, the Stokes bomb. Was that the product of an armament firm?

Mr. Lloyd George: That was not the product of an armament firm. My recollection is that Mr. Stokes was a manufacturer of agricultural machinery. That is so, is it not?

Professor Gutteridge: Yes.

Mr. Lloyd George: And they all looked down their noses at him when he came out with it.

Professor Gutteridge: Quite right!

Mr. Lloyd George: Let me give the details about that; because that is not a bad illustration. Had it not been that the government undertook the expense of experimenting, no private firm would have done it.

3926. *Dame Rachel Crowdy*: That is my point.

Mr. Lloyd George: I happen to have knowledge of that. £25,000 was sent by a Maharajah towards the cost of the War. I think it was sent to the Ministry of Munitions, and I spent it upon experimentation, because I could not get any official sanction for it. I have no doubt that if I had asked for money for experiments I could have had it but it was only the government who could have made the experiments. The Stokes bomb experiment turned out to be one of the most useful made during the War. We sadly needed something of the kind, because the Germans had very powerful equipment of trench mortars and we had none. It was extraordinarily simple—which in itself would have condemned it for a great many manufacturers.

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3927. *Dame Rachel Crowdy*: What about the Mills hand grenade?

Mr. Lloyd George: We could not get the Mills hand grenade manufactured at all until the Ministry of Munitions came in. I think, as a matter of fact, there were only about 15,000 manufactured before the government undertook the manufacture. Then by November we were turning out about a million a week.

3928. *Dame Rachel Crowdy*: Was that the invention of a private individual or did that emanate from some big private manufacturer, in the research laboratory?

Mr. Lloyd George: I do not think there was research by a private manufacturer; at any rate it was not turned out by private manufacturers and the government could not get it done. When we undertook the manufacture of Mills bombs we had not filling stations, among other things, but when we erected filling stations we were able to turn out Mills grenades, and, as everybody knows, they became more essential than rifles. The private soldiers as the War progressed fought more with their Mills grenades than they did with their rifles.

3929. *Dame Rachel Crowdy*: Then, as far as I remember, the substitute for the propellant did not come from a private manufacturer either. Was not that invented by Judge Fletcher-Moulton?

Mr. Lloyd George: Yes. Judge Fletcher-Moulton was the man who, when we were short of certain ingredients—so short that we could not have filled our shells—discovered that there were certain other ingredients which would produce exactly the same results. But that was done by him.

3930. *Dame Rachel Crowdy*: Again not by private manufacturers?

Mr. Lloyd George: Oh, no. He was assisted by the government.

3931. *Dame Rachel Crowdy*: And the paravane?

Professor Gutteridge: That was invented by Burney, a naval officer.

Mr. Lloyd George: That is right.

Professor Gutteridge: And not by a private manufacturer.

Mr. Lloyd George: No. The same applies to the hydrophone.

3932. *Dame Rachel Crowdy*: Then you would say you do not agree with those witnesses whom we have had before us who say that our inventions of the future must depend on the continuation of private manufacture? From your experience you know that some of the most useful things invented and used during the War did not emanate from private manufacturers.

Mr. Lloyd George: Take the tank, which was one of the most important elements in our victory. That came through a committee consisting of Sir Eustace d'Eyncourt, Colonel Swinton and Sir Maurice Hankey. I forget who were the other members of the committee, but not one of them was a manufacturer, and the whole of the experiments were conducted under the aegis of a government department. I took over the manufacturing, I think, some time in 1915. Experiments had been conducted before that by a committee of officers, and I do not know of any manufacturer who was a member of that committee. There was Sir Albert Stern, who came in afterwards, not in the experimentation but in the production. He was not a manufacturer.

3933. *Dame Rachel Crowdy*: Did the people who came from outside into the Ministry, when it was first set up, come largely from private manufacturing firms, or were they largely private manufacturers?

Mr. Lloyd George: Take some of the men who made the greatest impression: Sir Eric Geddes was a railway man; he was not a manufacturer.

3934. *Dame Rachel Crowdy*: I was really referring to the arms manufacturers.

Mr. Lloyd George: No, they would not be in the Ministry of Munitions.

3935. *Dame Rachel Crowdy*: I wondered whether individuals left their firms and came to the Ministry?

Mr. Lloyd George: Yes, there was one—Sir Glyn West. Sir Percy Girouard I think was also in Armstrongs.

3936. *Dame Rachel Crowdy*: But neither of those remained very long, did they?

Mr. Lloyd George: No. I do not want to say a word about them, but they did not. The men who remained were men like Sir Eric Geddes, Sir Ernest Moir—who was a contractor, not a manufacturer—and Lord Stevenson, who was in the whisky business.

3937. *Dame Rachel Crowdy*: It would not be fair to say that the Ministry of Munitions could not have carried on efficiently in its early days had not the private manufacturers sent some of their best people to help you in the Ministry? That would be inaccurate.

Mr. Lloyd George: Oh, quite inaccurate.

3938. *Dame Rachel Crowdy*: Could you give us any comparison of the output of, say, one of your national factories, taking a particular year during the War—one of your government factories—compared with, say, Vickers' factory at Erith? I pick that out particularly because it is one that I know something about. It would be very interesting if we could have particulars of the output of those two factories.

Mr. Lloyd George: I will see if I can get that. I have not got it with me.

3939. *Sir Kenneth Lee*: In the event of the outbreak of war, I presume you would agree that practically all manufacturers would be involved; every producer in the country would be required to produce arms of some sort or another, or equipment?

Mr. Lloyd George: It is not merely the production of arms. Practically every manufacturer is affected by government control.

3940. *Sir Kenneth Lee*: As far as the extra demand for arms is concerned, would not it have been much better if they had had some experience in peace-time of the manufacture of the particular things that they were likely to have to produce in time of war?

Mr. Lloyd George: It is quite impossible. After all, supposing you hand over the manufacture of arms to the government at present, you would have exactly the same number of men engaged in the production of arms as you have now, but the vast majority of the engineers in this country would be engaged on other tasks.

3941. *Sir Kenneth Lee*: But if they had no experience of producing the particular products they were required to produce in time of war, would not there be a loss of speed?

Mr. Lloyd George: I do not think so. We did not find that there was; we found that people who were producing motor-cars and gramophones, and every kind of thing, adapted themselves very rapidly to the production of shells.

3942. *Sir Kenneth Lee*: That is, of course, the policy suggested by the White Paper?

Mr. Lloyd George: It is not the policy suggested by the White Paper; it is the policy which I put into operation in 1915, if you will allow me to say so.

3943. *Sir Kenneth Lee*: It is the policy now suggested?

Mr. Lloyd George: I take it from you that it is.

3944. *Sir Kenneth Lee*: You get a number of firms prepared by giving them sample orders—firms which are not producing munitions in the ordinary way.

Mr. Lloyd George: I do not know whether sample orders would be very much use; because, after all, the moment you turn a factory to the production of something which it was not producing before, you have to reorganise the factory to a certain extent, and that is the thing which takes most time. Any competent engineer can soon pick up the manufacture of these things provided he has an expert there with him to tell him exactly what it is, and provided he

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has also the right jigs, gauges, and machine tools—that is vital. Once you give him those, a good engineer can turn out any of these things in a very little time.

3945. *Sir Kenneth Lee*: In the event of another war, would you contemplate the conscription of manufacturers and the conscription of employees?

Mr. Lloyd George: I do not know what you mean by "conscription." What is your interpretation of it?

3946. *Sir Kenneth Lee*: Some men would be put into the army, I take it, and some men would be required to stay at home. Would they be equally under control?

Mr. Lloyd George: Under discipline, you mean?

3947. *Sir Kenneth Lee*: Yes.

Mr. Lloyd George: Do you mean that you would put everyone in khaki? We found it quite unnecessary, and I think it creates a good deal of friction, and even the Germans found that they could not do it.

3948. *Sir Kenneth Lee*: Was the fact that they were not in khaki one of the causes of trouble at home with regard to men who were turning out munitions?

Mr. Lloyd George: If you had put them into khaki there would have been far more trouble. You could not have done it. That is one of the things that several war ministries had to consider; we considered it over and over again; not merely here—they considered it in France, they considered it in Germany, and even the Germans shrank from it.

3949. *Sir Philip Gibbs*: Was not it done in France; was not labour conscripted in France? Did not the working men serve on the same terms as the fighting men?

Mr. Lloyd George: Not on the same terms of discipline.

3950. *Sir Philip Gibbs*: The same terms of payment?

Mr. Lloyd George: That I could not tell you; I am not sure about payment; but certainly not discipline.

3951. *Professor Gutteridge*: Would you be in favour of the same terms of payment? That, to my knowledge, caused a good deal of feeling in the army.

Mr. Lloyd George: That is a question that I hesitate to answer straight away; because, after all, in the army a man is fed and clothed, and then there are allowances made for his wife and for his children, and they were fairly generous allowances in this country. I am not sure that you could have done it in munitions unless you actually fed the men, for instance, and then gave an allowance for the family. That you could not do; I should say myself it would be impracticable. That is the feeling I have.

3952. *Mr. Spender*: As you raised the question of 1909, and as you are one of the few people who were in office during that time, perhaps you will let me ask you one or two questions about it. You would not say, would you, that the margin of capital ships provided proved excessive in 1914?

Mr. Lloyd George: You are entering into an argument which is still very much alive.

3953. *Mr. Spender*: It is rather important.

Mr. Lloyd George: Yes. I would.

3954. *Mr. Spender*: You would say it was?

Mr. Lloyd George: Yes, I definitely would. I think it would have been better for us if we had spent more money upon small craft for the protection of our ships, instead of having millions of tons sunk because we had not got the necessary convoys, and providing huge battleships which only fought two battles, the last of them being a battle in which both sides claimed the victory and both ran away.

3955. *Mr. Spender*: There are not many strategists who would agree with you?

Mr. Lloyd George: Yes, there are. I have talked to a good many able men who take that view very strongly, and there were at that time some of the ablest naval men who did not agree in the least with Sir John Fisher about the big Dreadnoughts.

3956. *Mr. Spender*: Our margin, such as it was, was not only made up of the 1909 programme, which you thought excessive; there was another large programme of 1914, which was thought equally imperative, and that was after the Admiralty and the government had had the opportunity of investigating everything that was said. You had another large programme in January, 1914?

Mr. Lloyd George: That was contentious, and I do not want to revive these old controversies.

3957. *Mr. Spender*: But that is the case, is it not? It was not merely Mulliner; the Admiralty did assert that they had intelligence of their own, quite apart from Mulliner, which led them to believe that the Germans were putting themselves in a position to accelerate?

Mr. Lloyd George: Yes; but they were not. 3958. *Mr. Spender*: There is a great deal of German evidence on that subject.

Mr. Lloyd George: I do not know that the Germans asserted that they could, and I think the result demonstrated that they were telling the truth when they said that they were only carrying out a definite programme.

3959. *Mr. Spender*: There is a report in the German documents, in the 28th volume, of a certain conference in Berlin, when Admiral Von Tirpitz made the disclosure which was very embarrassing to Count Metternich, the German Ambassador in London, who assured us the opposite, that they were preparing a new large programme for 1912. That seemed more than to justify everything that the Admiralty had said about the intentions of the Germans.

Mr. Lloyd George: All I know is that, as a matter of fact, the predictions which were made to us as to the number of German ships were wrong. We were given the impression that the Germans would probably have a majority of ships; that the margin would be on the wrong side. That turned out to be absolutely inaccurate.

3960. *Mr. Spender*: If my recollection is correct, was not the government told that unless they took certain steps to add to the fleet in 1909, as they did, and afterwards in 1914, the Germans would be in a position to be in a majority in a certain year—I think the year was 1916, but I do not absolutely recollect it; it was a long way ahead—and it was said contingently: Unless you, the British government, do add considerably to your construction programme, the Germans will in a certain year (I think it was 1916) be in that position; but it was always contingent—"unless."

Mr. Lloyd George: Yes; but the actual figures which were given to us of what the Germans had at a certain date were incorrect. There was no question of the desirability of building a certain number of ships, but there was pressure brought to bear upon the government to build more ships than I think even now were necessary at the time, and that pressure was supported by evidence that the Germans at such-and-such a date would have a certain number of ships which they did not have.

3961. *Mr. Spender*: That might have been contingent; but the main fact was, was it not, that unless you did this or that you would be in a position of danger?

Mr. Lloyd George: If we did not build any ships, then, of course, we would be. There was no dispute at all as to the desirability of building a certain number of ships, but then there was very great pressure to build more ships than were necessary.

3962. *Mr. Spender*: Would that be true of 1914 as well as of 1909?

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Mr. Lloyd George: I am sorry I have not gone into the question of 1914. I am not at this moment in a position to give an answer about 1914 without looking into it.

3963. *Mr. Spender:* I would only suggest that there was, at all events, whatever difference of opinion there might be on this subject, sufficient doubt to make it very undesirable that the British government should take the risk of being short of capital ships.

Mr. Lloyd George: They took a far greater risk, as the War turned out, of building these capital ships which were no use to us, and neglecting—

3964. *Mr. Spender:* Of no use?

Mr. Lloyd George: They were absolutely of no use. In the War there were only two fights. They neglected, because of that expenditure upon capital ships, the small craft, which we found when the War came was a very serious deficiency, and which resulted in a loss of millions of tons of shipping, and came nearer to losing us the War than anything else.

3965. *Sir Thomas Allen:* When you say "they neglected," could you define that a little?

Mr. Lloyd George: The Admiralty. We constructed all the small craft that the Admiralty advised us to construct, as far as the government were concerned, but the Admiralty were concentrating so much upon these monster ships that they were not giving a thought to what turned out to be far more important in practice, and that was the building of torpedo craft for the protection of our commerce.

3966. *Sir Thomas Allen:* Could we use the word "they" apart from government obligations?

Mr. Lloyd George: I have given my definition.

3967. *Mr. Spender:* That is a very disputed question of strategy, of course, which I do not want to press too much. It may have been that the government ought to have done both, but it is clear even now that no government runs the risk, in the uncertainty of the future, of not building capital ships.

Mr. Lloyd George: I never suggested that capital ships should not be built. My suggestion is that there was an attempt to rush us into building more capital ships than were necessary, and that that had the effect of restricting the output of craft that turned out to be far more essential.

3968. *Mr. Spender:* I think we are in some little doubt as to where exactly we stand in this matter. I do not think there is any substantial difference between us that there would be a very large control necessary—state control—in time of war; but what we are asked to do is to advise a proper peace establishment. I think I understood you to say that you agreed both with Sir Eric Geddes and with Dr. Addison?

Mr. Lloyd George: What was that about Sir Eric Geddes?

3969. *Mr. Spender:* Sir Eric Geddes was strongly opposed, as we understood him, to a state monopoly.

Mr. Lloyd George: Yes.

3970. *Mr. Spender:* He was in favour—

Mr. Lloyd George: I only quoted him on another matter.

3971. *Mr. Spender:* He was in favour of a state establishment, including a laboratory and model workshops, which were to provide all the things which you have just spoken of—jigs and machine tools. He was not at all in favour of going beyond that point.

Mr. Lloyd George: I do not agree with him.

3972. *Mr. Spender:* Whereas Dr. Addison was in favour of taking over all the armament firms. I do not know how far he would have extended it. He was going to pay them compensation; we asked him about that, and he said he would take over all the existing armament firms. Is that your view?

Mr. Lloyd George: Yes, that is my view definitely.

3973. *Mr. Spender:* Perhaps you could help me on this: I do not know how it affects the other Com-

missioners, but in thinking about an organisation for any future war my own difficulty is to discover any idea or theory behind it.

Mr. Lloyd George: Of what?

3974. *Mr. Spender:* Any idea or theory of what another war, if unhappily there was one, would be like. The great trouble in the last war was that nobody had any clear theory—neither the army, nor civilians, nor any country, so far as we know, had any clear theory—of what the war was going to be like; and therefore, if you think state establishments to be the right solution, will not you run the risk of the troubles which you have laid stress on—bureaucracy, red tape, and stagnation?

Mr. Lloyd George: Private firms would not help you in the matter of theory. They had no theory at all; they simply accepted orders from the government. It is the business of the government to make up its mind as to what will be necessary in the way of armaments, which means that it is for them to decide the theory. Private firms have nothing whatever to do with that; they simply take orders.

3975. *Mr. Spender:* All I was trying to get at was this: You have dwelt in your books on the dangers of official control and the great difficulty of getting over official obstacles and red tape. Do not you think that all that would be increased if you have a much larger official system than we had in the last war?

Mr. Lloyd George: I do not know that government arsenals are inefficient, or that they are less efficient than private firms. The men whom I got from the arsenals to help me I found were just as intelligent as the men I met from the private firms.

3976. *Mr. Spender:* But you have spoken rather freely, have you not, about the obstructiveness of officials and the official mind?

Mr. Lloyd George: I have spoken very freely and very candidly about the rigidity of the professional mind, and I am afraid that is not confined to one profession.

3977. *Mr. Spender:* The point I was trying to make was: Would not all that be increased supposing you had all officials instead of one official?

Mr. Lloyd George: I do not know. You might say that the men in the arsenals are all officials; but, as a matter of fact, there are engineers and there are foremen, just like the men you have in Barrow-in-Furness and in Newcastle; I do not know that there is any difference. As a matter of fact, there are men drawn from these government arsenals who are running the show now in the private arsenals. I had the privilege of meeting one the other day, and he was a very able man, but I think his training was in a national arsenal.

3978. *Mr. Spender:* We are not disagreeing about that. I was only asking about what you have said.

Mr. Lloyd George: The rigidity of the professional mind—I do not know that I am unique in the views which I have expressed about that.

3979. *Mr. Spender:* Then with regard to these peace establishments: what is apparently suggested to us is that a government establishment must not merely take over the private firms, but it must make good all the deficiencies which are now attributed to private firms, which would undoubtedly, as it appears to some of us, mean a very large fresh expenditure and also the keeping—

Mr. Lloyd George: In what respect would it mean a large expenditure?

3980. *Mr. Spender:* There would be a large expenditure on one matter—in reserving labour; a large reservoir of labour would apparently be needed and would have to be kept in continuous employment.

Mr. Lloyd George: I do not think that would be so. One of the lessons of the War which has not been pointed out to-day, but it is one which is very evident to those who took part in the manufacture, is that you can very readily adapt the skilled labour in this country to any task. It is about the best skilled labour in the world, and it can adapt itself to any job or to the manufacture of any machine,

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provided it gets the necessary specifications; and therefore there is not the need for all that reservoir of idle men.

3981. *Mr. Spender*: If we look, for instance, at the evidence given before the Nye Committee in America, the chief pressures on public opinion alleged are not only those of the armament firms, but of the great, heavy industries—iron and steel. Over here we hear of the pressure of the steel industry, which is supposed to be the great promoter of military ideas.

Mr. Lloyd George: Yes; but I fancy that iron and steel would include there the private manufacturers of steel machinery, who undoubtedly made huge profits during the Great War. It is not merely those who turn out iron and steel; it also includes all those who are engaged in the production of steel machinery; and in a country like the United States of America, where everything is in the hands of private firms, there is no doubt that it is an inducement in that case; but if you nationalised the arms industry in the United States of America you would eliminate that prospect from the iron and steel industry, and it would be a very good thing, too.

3982. *Mr. Spender*: You would not he merely transferring the pressure from the armament firms to the government itself?

Mr. Lloyd George: Oh, no. The government's supreme interest is peace, even from the pecuniary point of view. I am talking now of the pecuniary point of view. Their interest is peace; but the interest of the armament firms from the point of view of money and cash is war and preparations for war.

3983. *Mr. Spender*: But in this particular connection what we are thinking of rather is political pressure, the pressure which is put upon the government to keep a dockyard fully employed so that its labour shall not be short of work.

Mr. Lloyd George: We are always confronted with that, and you have a certain number of members always in every House of Commons who are bringing pressure to bear of that kind; but everyone knows that that happens, and I should say that governments discount that particular pressure; but when you have a pressure which is spread all over the country, and you do not know where it comes from, but you have thousands and tens of thousands of people who have a direct pecuniary interest in preparations for war, whose shares go up the moment you talk about preparations for war—they went up, I am told, about £30,000,000 recently—when you think of that, then the pressure is a very different one from the pressure which comes from dockyard constituencies, which everyone discounts.

3984. *Mr. Spender*: When you have a vast institution like Imperial Chemical Industries, whose interests are spread all over the country, that is undoubtedly a firm producing munitions—would you think it necessary to go to the length of creating a monopoly there?

Mr. Lloyd George: I do not know to what extent they actually manufacture explosives. I think they took over Nobel's, did they not? I should certainly eliminate anything in the nature of the production of explosives for war material, and therefore their interests in war-time would not be quite as great as they are at the present moment.

3985. *Sir Thomas Allen*: They told us in evidence that 1 per cent. of their total output was for armament purposes.

Mr. Lloyd George: That is a small percentage. It is very important, if it is only 1 per cent. I should not have thought that would have made all the difference, and I am hoping they will get more and more of an interest in the production of chemicals for agricultural purposes, where there is a vast prospect.

3986. *Mr. Spender*: I am not trying to be contentious on these points; I am only putting certain difficulties which one wants to clear up.

Mr. Lloyd George: I do not mind you being contentious at all.

3987. *Mr. Spender*: You are in favour of complete nationalisation in the same way as Dr. Addison and Mr. Noel Baker?

Mr. Lloyd George: Yes. I read Mr. Noel Baker's evidence, and I thought it was very powerful. I do not say I am in agreement with everything he said, but in substance I am in entire agreement with him.

3988. *Sir Philip Gibbs*: Might I ask you a slightly historical question, which I think is rather important to this Commission and in fact to everyone? Can you throw any light at all on the reasons and the way in which Article 8 (I think it is) of the Covenant was drafted, and of the condemnation of private manufacture and traffic in arms?

Mr. Lloyd George: Which is the article?

3989. *Sir Philip Gibbs*: It is in the Covenant; I think it is Article 8, paragraph (5). It is the article which refers to the grave objections. I was wondering what were the influences and what were the reasons which led the authors of the Covenant to put that in; that is to say, was it based upon evidence, or upon general feeling, or upon historical knowledge?

Mr. Lloyd George: Well, I think it was based on very general feeling amongst all those who took part in the Peace Conference, and there was no protest of any sort or kind from any quarter against this. There was a feeling, to begin with, that Krupp in Germany had had a very pernicious influence upon the war spirit in Germany, and had stirred it up a good deal for their own ends. I have no doubt that in France a good many men like M. Clemenceau, for instance, had the same feeling. Clemenceau knew a good deal more than we did about the influence of that powerful armament interest in France, its influence upon the press; and President Wilson, of course, took a very strong line with regard to it; in fact, there was not one there who did not agree that if you wanted to preserve peace in the world you must eliminate the idea of profit of great and powerful interests in the manufacture of armaments. There was a good deal said about these various firms and their activities, and there was a perfectly unanimous sentiment that this was one of the things that ought to be done, not merely here but also in France, in Germany, in Austria, and in Russia.

3990. *Sir Philip Gibbs*: I asked that question because there has been a certain idea, and it has been written about in various newspapers, that it was merely the idealism of one man like President Wilson.

Mr. Lloyd George: No, that is not in the least true. Krupp were very much in our minds, of course, but I am certain there were other firms, too.

3991. *Sir Philip Gibbs*: I hate going back to this old Mulliner case, which has been referred to several times, but would you agree that it is extremely important, because if the allegations about Mulliner are true it was then a contributory cause of the Great War, because the agitation in England and the public propaganda for an increased fleet stirred up similar agitation in Germany, and immense pressure was put upon the German government and Von Tirpitz to increase the German navy; and therefore it might be said, if there is any truth in the allegations against Mulliner, that he was rather a contributory cause of the Great War. Is that a fair way of putting it?

Mr. Lloyd George: I have no doubt at all that the naval competition between Germany and ourselves was a contributory cause, but I should not say it was merely Mulliner, because there were other influences in Germany operating upon the German government and upon the German press.

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3992. *Sir Philip Gibbs*: Would you say that the public agitation in England caused by the propaganda did have repercussions in Germany?

Mr. Lloyd George: Oh, undoubtedly, just as the agitation in Germany had repercussions here; because articles in the German press were quoted here, and articles which were written here were quoted in the German press.

3993. *Sir Philip Gibbs*: Therefore I think perhaps you would agree that the Mulliner case is important?

Mr. Lloyd George: It is undoubtedly an element.

3994. *Sir Philip Gibbs*: Is it your recollection—we have all been fumbling for the exact figures—that Mulliner and the propaganda caused by his statements made out that Germany would have 22 Dreadnoughts in April of 1912, whereas they only had nine—is it now within your recollection?

Mr. Lloyd George: I cannot give the exact figure, but the answer I gave to Mr. Spender goes as far as I can remember. There is no doubt at all that Mulliner gave a figure which showed that the Germans would have a definite superiority over us in Dreadnoughts, and the figure he gave was a figure that the Germans did not come anywhere near attaining; but whether it was 22 I cannot remember at this moment. I know it was an impossible figure.

3995. *Sir Philip Gibbs*: I think that is the exact figure.

Mr. Lloyd George: That bears out my impression, that he gave a figure which was not attained, and which was not attainable, as a matter of fact.

3996. *Sir Philip Gibbs*: There is one very important aspect which has not been mentioned this morning with regard to the nationalisation of this industry, and that is the foreign export trade. Are you hostile to the export of arms generally from a moral point of view?

Mr. Lloyd George: No. I should have exported arms to Abyssinia before the war began, and not put an embargo on as we did.

3997. *Sir Philip Gibbs*: Would you go as far, then, as approving of the indiscriminate export of munitions from this country or any other country?

Mr. Lloyd George: No, not indiscriminate. Those are things that the League of Nations would have to thrash out very carefully. There must be some international code with regard to the export of arms.

3998. *Sir Philip Gibbs*: But supposing we cannot get an international agreement, are you in favour of the present system of the export of arms by private manufacturers to foreign countries?

Mr. Lloyd George: I would not have any private manufacture of arms, and therefore the only question is whether you would export arms from government arsenals, and I can well understand that there might be conditions under which it would be desirable that we should.

3999. *Sir Philip Gibbs*: I imagine, therefore, that you are basing your argument entirely on nationalisation, but I was rather hoping to get from you an expression of opinion upon the present system if nationalisation is not possible or is not carried out in this country.

Mr. Lloyd George: That would put certain countries at an obvious disadvantage, and especially the weaker countries, if they were not in a position to purchase arms anywhere, and it would drive them to setting up factories of their own at an extravagant cost, and I do not think that would be a good thing from the point of view of the peace of the world. I think you would have to permit the export of arms under very careful regulations and conditions, and the government is far better able to judge of these than a private firm from the point of view of policy.

4000. *Sir Philip Gibbs*: From the historical point of view, up to the present day, when this free ex-

port of arms is going on in the world, do you think that the traffic in arms abroad has been a contributory cause of wars?

Mr. Lloyd George: Oh, undoubtedly; I should not have thought there was any doubt about that at all. There are many illustrations of that.

4001. *Sir Philip Gibbs*: Would you think, for instance, it was right to say that the building up of the Japanese Navy by a firm like Vickers-Armstrongs had created a new menace in the world?

Mr. Lloyd George: Well, I would not like to go as far as that; because under any system I think that Japan would have had her ships ultimately. Perhaps it precipitated the present condition of things, but I do not think that anything could have prevented it.

4002. *Sir Philip Gibbs*: Do you think that the private export of arms to countries like Serbia, Bulgaria, and Turkey was one of the contributory causes of the Balkan wars?

Mr. Lloyd George: They could not have fought those wars unless arms had been exported to those countries, and if the export were under the control of governments—well, governments would have had some sort of responsibility as to the use which was going to be made of those weapons; and, besides, it would have called their attention to the condition of things, and there would have been a general sense of responsibility. Naturally, a private firm has not to consider these things.

4003. *Sir Philip Gibbs*: Do you think that the nationalisation of the arms industry would entirely abolish many of the grave objections mentioned in that article of the Covenant?

Mr. Lloyd George: I think so. I think that if you abolished the private manufacture of arms there would be a very valuable contribution to the cause of peace—very valuable.

4004. *Sir Philip Gibbs*: Because I imagine that foreign governments might subsidise the press in the same way as private manufacturers do in foreign countries, or in our own country perhaps.

Mr. Lloyd George: That, as you know, does happen in some countries, not in ours; but it does happen. You cannot avoid that, I am afraid; but, at any rate, foreign governments would not do it with a view to provoking war.

4005. *Sir Philip Gibbs*: They might do it with a view to buying an alliance?

Mr. Lloyd George: Yes, they might. You cannot remove every danger to human life.

4006. *Sir Philip Gibbs*: But you do feel generally that a national system would eliminate quite a number of objections?

Mr. Lloyd George: Yes; that is all you can do.

4007. *Sir Thomas Allen*: I want just to ask you one or two questions by way of elucidation. One of the arguments advanced by you in favour of nationalisation is on account of the trafficking in armaments shares. Do you see any way, apart from complete nationalisation, of meeting that situation by some form of legislation that would prevent this trafficking in shares that is now going on and has been going on since the government decided its new armaments programme?

Mr. Lloyd George: That undoubtedly would be valuable; but what makes it very ominous is that this traffic in shares went on in spite of a definite pledge given by the Prime Minister that there would be restriction of profits; and it shows how difficult it is, by means of legislation, effectively to restrict that kind of operation.

4008. *Sir Thomas Allen*: The White Paper* does not cover dealing in shares so much as regulating profits?

Mr. Lloyd George: Yes, that is true.

4009. *Sir Thomas Allen*: Under the new armaments programme do you see the possibility of the elimination of profit under the White Paper regulations?

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Mr. Lloyd George: We did our best to do that with regard to the production of munitions, but we did not achieve the whole object that we had in view, because the armament firms did make enormous profits in spite of all the restrictions that were imposed upon them in the way of cutting down of costs and the excess profits duty and that sort of thing. It is a very, very difficult thing to do. Then there is the additional difficulty pointed out by the Chairman, that a great many of these firms do civilian work as well, and you could not possibly prevent them dealing in their shares if 50 per cent. of their work was civilian, and certainly not if it was 70 per cent. That is one of the difficulties.

4010. Sir Thomas Allen: Short of absolute nationalisation, do you see any way by which this feeling in the minds of the community that this is a business in which excessive profit is made could be removed?

Mr. Lloyd George: I hope you understand that I am not attacking private enterprise. That is not my line at all. I am only talking about one particular business where I think it is very desirable that there should be no private profit. I wish I could see any other way of dealing with the situation, but, short of control of practically every commodity, I do not see how you can do it unless you have this state monopoly.

4011. Sir Thomas Allen: You also said in the course of your observations that armament firms had secret information not available to governments. Is that because they are more internationally minded than governments and have a greater understanding?

Mr. Lloyd George: I did not say it was not available to governments. The armament firms possessed evidence which was in their possession, based on secret information which they had received. Whether it was available to the governments or not, I do not know. We had our information, but our information did not go, I think, as far as that which was conveyed to us by the armament firms—nothing like it.

4012. Sir Thomas Allen: You did rely upon secret information?

Mr. Lloyd George: We had certain secret information, but the evidence possessed by the armament firms rather indicated that our information was not accurate.

4013. Sir Thomas Allen: My point is: Were they in a position to get, because of their international relationships with each other, information which the government were not able to get?

Mr. Lloyd George: That is what we assumed. We did not ask them how they got their information. That is the sort of thing they would not be bound to answer.

4014. Sir Thomas Allen: When you define nationalisation, do I understand you to mean that in peacetime the government should accept sole responsibility and have the sole manufacture of armaments, and then in emergency, in war-time, it should harness the whole industry of the country to state production?

Mr. Lloyd George: That is so.

4015. Sir Thomas Allen: That is what we understand when you speak of a state monopoly?

Mr. Lloyd George: Yes, that is my view.

4016. Sir Thomas Allen: Now with regard to sales abroad under Article 8, paragraph (5), of the Covenant. I think it also says, as far as my memory goes, that regard must be had to those nations which are not producing arms, and, with regard to them, that they shall not be subjected to shortage in supplies?

Mr. Lloyd George: That is right. That would involve export, undoubtedly.

4017. Sir Thomas Allen: It has been put to us that there is a strong objection to export by a government as such, in contrast to export by private enterprise

—that it would involve the government in political difficulties which do not arise in export by private enterprise. Do you see any difficulty in that?

Mr. Lloyd George: I do not see any difficulty at all. So long as nations are at peace you are entitled to sell any articles to another nation. If you are on friendly terms with them I do not see why there should be any difficulty about that.

4018. Sir Thomas Allen: Your view is that sales should be by one national government to another?

Mr. Lloyd George: Yes—of armaments.

4019. Sir Thomas Allen: Another objection raised against nationalisation has been that government departments do not reward their servants or give consideration for enterprise in design and constructiveness; that the system is altogether against inventive enterprise in the national system as contrasted with the private system. Can you see some other way than the present system of reward for enterprise being forthcoming under a national system which would encourage every effort?

Mr. Lloyd George: I think there are rewards given. I forget for the moment whether they are confined to those who are not in the service of the Crown, but I remember, as Chancellor of the Exchequer, that I had to sit upon one or two cases to adjudicate the amounts to be paid for an invention; so I think that rewards are paid, and I think it is right that rewards should be given. Sometimes a reward might be pecuniary; sometimes it might be in the form of an honour.

4020. Sir Thomas Allen: Or advancement?

Mr. Lloyd George: Yes; but I do not see why it should not be pecuniary in certain cases.

4021. Professor Gutteridge: I think that large amounts were paid to the people who were concerned with the tanks, people like Major Wilson, and so on.

Mr. Lloyd George: That is right; and it was well worth the money.

4022. Sir Thomas Allen: I was not thinking so much of what might be done in war-time, but of a system in peace-time which would encourage enterprise.

Mr. Lloyd George: I am all for it.

4023. Sir Thomas Allen: It has also been put to us that under a national system the government would have very much greater trouble with labour than private enterprise; that there would be demands made upon a national organisation; that there would be political considerations which would enter into it, and that strikes would probably be more numerous under a national system than under a system of private enterprise.

Mr. Lloyd George: I do not think that that is quite the experience in these matters. We did not have more trouble with arsenals than we had with private firms. We had very considerable trouble in Glasgow and in Sheffield and in Coventry, and I am not sure that we did not have it in Barrow-in-Furness—but I am not quite sure of that—with private firms.

4024. Sir Thomas Allen: I think I can say again at this juncture that I have been very much impressed, sitting on this Commission, with the ability of former government officials who have passed away from government service and have gone into private enterprise.

Mr. Lloyd George: That is right.

4025. Sir Thomas Allen: I have thought in my own mind that if the government had cared to harness those gentlemen to a national system they could have served the state equally as well as they serve private enterprise.

Mr. Lloyd George: That is quite right.

4026. Sir Thomas Allen: What I want to ask you is this: If the government made up its mind upon this national policy and said "Go," whether you would find in the three services men who would respond to that request most readily, just as they do for private enterprise.

Mr. Lloyd George: I have not the slightest doubt about it; and, to corroborate what you said, some of the men who are now engaged in the

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private firms have been drawn from the services, and very able men they are.

4027. *Professor Gutteridge*: Can you tell me this: When paragraph (5) of Article 8 of the Covenant was under discussion, was there any inquiry into the nature of the grave objections, or anything of that kind—were they dealt with categorically, or were they simply dealt with generally as a whole? Can you remember that?

Mr. Lloyd George: Each article in the Covenant was discussed with great elaboration and care.

4028. *Professor Gutteridge*: But you cannot recollect whether there was any investigation?

Mr. Lloyd George: No; there would be no investigation.

4029. *Professor Gutteridge*: That is what I meant; it was based on an impression?

Mr. Lloyd George: It depends on much more than impression; and, after all, they were men who had considerable knowledge.

4030. *Professor Gutteridge*: You refer to M. Clemenceau?

Mr. Lloyd George: Yes. He knew pretty well what was going on; no one knew better.

4031. *Professor Gutteridge*: I have always understood—I may be wrong—that the idea of this paragraph came directly from President Wilson.

Mr. Lloyd George: I am not sure about that. 4032. *Professor Gutteridge*: There is an American lawyer—I think his name is Miller—who has written a book on the subject, and he attributes the origin of this to President Wilson.

Mr. Lloyd George: All Americans would!

4033. *Professor Gutteridge*: You do not know whether that is correct or not?

Mr. Lloyd George: No.

4034. *Professor Gutteridge*: I do not know whether I quite understood your point of view. I do not think you went so far as to say that there were no inventions utilised during the War which came from the armament firms?

Mr. Lloyd George: No, I did not say that.

4035. *Professor Gutteridge*: For instance, there was the 9-inch gun, which has always been said to be the best gun on either side during the War. That was the invention of Vickers.

Mr. Lloyd George: The 9.2?

4036. *Professor Gutteridge*: Yes.

Mr. Lloyd George: Yes; but there were others which were not as good, also inventions of armament firms. I could name them if you like.

4037. *Professor Gutteridge*: The Lewis gun was an American gun, was it not?

Mr. Lloyd George: I think we had to buy it from outside; I am not sure. I do not think it was invented by an armaments firm.

4038. *Professor Gutteridge*: The Rolls Royce engine was the best aeroplane engine during the War beyond doubt, was it not?

Mr. Lloyd George: It was supposed to be.

4039. *Professor Gutteridge*: Sometimes they invented things, and sometimes they were invented outside the armaments firms.

Mr. Lloyd George: Take the 6-inch howitzer, which was on the whole the best gun we had. I think that was invented by the service after very elaborate experiments. We depended far more on that than on any other gun. The other was a first-class gun, but we depended on that far more.

4040. *Chairman*: May I just ask one or two questions, quite shortly; first of all, with regard to the export of arms. In your view, it is not possible to abolish the export of arms altogether?

Mr. Lloyd George: I think it would be undesirable. I agree with this article of the Covenant that you must make provision for those who have not manufactures.

4041. *Chairman*: If you assumed a state monopoly and the abolition altogether of the private manufacture of arms, the only business or the only source

from which anyone could obtain arms would be the government factories—some government factories?

Mr. Lloyd George: That is right.

4042. *Chairman*: It has been pointed out to us, or suggested to us, that that would inevitably lead, or would very probably lead, to diplomatic difficulties. I will give an instance: It is said that supposing a government applies to a manufacturing government for a supply of arms, and the applicant is perhaps ranged on the side of a country which that manufacturing government may not think is friendly, and they say: "We cannot supply you with any arms," and then that state goes to No. 2 manufacturing government and says: "Will you supply us with arms?" and they say: "Oh, yes, we will!"—it is suggested that the first government which refused to supply the arms might treat the act of the second government which agreed to supply them as an unfriendly act, and in that kind of way you would find considerable difficulties.

Mr. Lloyd George: By "unfriendly" you mean a case where we have an actual dispute with another country?

Chairman: Yes.

Mr. Lloyd George: Which might mature into a quarrel?

Chairman: Yes.

Mr. Lloyd George: I cannot imagine them coming here to buy arms.

4043. *Chairman*: No, not coming here, I agree; but other people may be only too glad to make a profit out of the manufacture of arms.

Mr. Lloyd George: That is what they do at the present moment.

4044. *Chairman*: Yes, true.

Mr. Lloyd George: A quarrel of that kind is probably a quarrel which would come within the cognisance of the League of Nations, and during the dispute I think it is very probable that all governments would agree not to supply arms. They went as far as to do that in the Italian dispute before there was war declared; they even prevented private manufacturers from supplying arms; and if you can do that at the present moment with private manufacturers I do not see why it could not be done by governments if there are disputes going on at the time, and I should say it might be useful. Take Bolivia and Peru; supposing they were on the brink of another quarrel with each other and were going to fight, there might be a kind of understanding between the manufacturing governments that they should not supply either with arms; whereas they would not like to go to the extent of putting an embargo upon the sale by private firms; but if it was in the hands of a government there could be an understanding that neither of them should be supplied with arms. As a matter of fact, the arms in this case were supplied by private manufacturers, and the governments did not quite like to stop it; they said that was private enterprise and private business, and did not intervene. They would have intervened long before the war, and probably before the trouble became aggravated, if the supply had been by governments. The government of the United States of America, for instance, would have stopped the exportation of arms, and probably communicated with us and with France and with the rest, and would have said: "We hope you will not supply these people because they are working up a war." I think you would have far greater control over the international system if you made the manufacture of arms a national monopoly. Governments would then have a direct responsibility. Of course, there is not enough profit in it for a government in any event to endanger peace.

4045. *Chairman*: One other question on another matter, with reference to the employment of service officials in private firms, leaving the service and being employed by private armament firms. Of course, if you adopted a monopoly the question would not arise?

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Mr. Lloyd George: No.

4046. *Chairman:* But assuming that a system is continued of state factories and private manufacturers working in collaboration, it is in the interests of the state, is it not, that private manufacturers should be as efficient as possible because it is in the interests of the state that they should be as efficient as possible?

Mr. Lloyd George: Yes.

4047. *Chairman:* And therefore that they should get the best assistance they can from whatever source—and there is no source from which they can get efficient assistance except from the services, because it is only the services which have the practical knowledge.

Mr. Lloyd George: I think it is a very bad system. I do not think that state officials ought to have it in their minds that after they leave the particular department where they are exercising control they should be engaged in high positions with firms which will pay them twice or three times as much as they were paid in the civil service. I do not say that it will influence them, but I do not think they ought to be put in that position, and if you had state-owned establishments you would remove that kind of temptation. I have always thought it was a bad system.

4048. *Chairman:* I want to ask you one further question about that. The army and navy are not very attractive services now, are they—I mean from the point of view of a man's future; he is turned adrift very often and finds it very difficult to get anything to do. Supposing you were to make some sort of rule that a man who had once entered the service should not go into the service of an armament firm, it would deprive able young men, would it not, of an opportunity that they might look forward to, even if it influenced their careers in the army or the navy?

Mr. Lloyd George: That is an additional reason for nationalisation.

4049. *Chairman:* I agree. Directly you arrive at a monopoly the whole difficulty would disappear?

Mr. Lloyd George: Yes, that difficulty goes. I think it is rather hard that they should be ruled out from prospects of that kind, but they would not have them if you had a state monopoly.

4050. *Chairman:* Another point is this: Of course, so long as there was competition between the armament firms it might be an objection that a man from the services should go to a particular armament firm, because he would perhaps be able to use his influence with a friend in office that his particular firm should be the selected firm; but now, when all competition between these armament firms has disappeared, and whatever orders are going they distribute amongst themselves, that objection has disappeared, it seems to me, because a man gets no advantage from having a friend in office if the order, or whatever it is, is to be distributed amongst them under this new system.

Mr. Lloyd George: That may be true; but it is much more far reaching than that.

4051. *Dame Rachel Crowdy:* I think you said that if there was nationalisation of manufacture most of the objections connected with the export of arms would be done away with, but not quite all, or possibly not all?

Mr. Lloyd George: Yes, that is right.

4052. *Dame Rachel Crowdy:* It would be right to say, would it not, that touting for orders in foreign countries would be done away with under a government monopoly; one cannot conceive of any government deliberately touting for orders in another country?

Mr. Lloyd George: No.

4053. *Dame Rachel Crowdy:* Particularly if their diplomats were sitting at Geneva trying to make peace between the countries concerned?

Mr. Lloyd George: The interest of the government is not to have trouble between nations, and the

profit that they would make out of it would be insignificant.

4054. *Dame Rachel Crowdy:* Do you think, too, that it would do away with all these attempted evasions of embargoes?

Mr. Lloyd George: Oh, yes.

4055. *Dame Rachel Crowdy:* You cannot conceive of a government trying to set up a factory in another country in order to avoid an embargo.

Mr. Lloyd George: And selling arms which are used against us in some parts of our Empire. That has been especially the case on the North-West Frontier of India and other places.

4056. *Dame Rachel Crowdy:* That was almost my next question; I was going to ask you if you knew of any cases where arms had been sold either during war-time or during peace-time by our own firms to be used against us.

Mr. Lloyd George: I could not say during war-time, but during a time of nominal peace actually arms have been sold which have been turned against us ultimately.

4057. *Dame Rachel Crowdy:* With the knowledge of the firms that they might be turned against us?

Mr. Lloyd George: They must have had that possibility in their minds, especially on the North-West Frontier.

4058. *Professor Gutteridge:* They would be second-hand arms, would they not?

Mr. Lloyd George: Mostly, I should say.

4059. *Dame Rachel Crowdy:* I was not thinking of second-hand arms; I was thinking of arms that were sold by private manufacturers in country A to country B with the object of country B sending them to country C, where they would be used against us. I was thinking of something rather more far-reaching than that Professor Gutteridge has in mind.

Mr. Lloyd George: Yes. I have not a case of that kind in my mind.

4060. *Mr. Spender:* Would not Turkey be a case in point? We undertook the supervision of the Turkish navy in 1912, did we not?

Mr. Lloyd George: Yes.

4061. *Mr. Spender:* And I think that some of our own shells were actually used in the Dardanelles against us?

Mr. Lloyd George: Yes.

4062. *Mr. Spender:* That was the government, was it not—it was not a private firm?

Mr. Lloyd George: I do not know whether the government sold any arms.

Mr. Spender: The government undertook to keep the Turkish navy in good condition and to supply it with munitions.

Professor Gutteridge: I think there were British naval officers actually on board the Turkish warships when war broke out.

Mr. Lloyd George: I see.

4063. *Dame Rachel Crowdy:* We have been told very often that the abolition of the private manufacture of arms would make for unemployment. Would you give us your comments on that?

Mr. Lloyd George: I cannot imagine why, because the government makes up its mind each year how much it is going to spend upon armaments as a matter of public policy, and you require the same number of men to work on these projects whether the orders are executed by the government or whether they are executed by a private firm. I do not see why there should be unemployment.

4064. *Dame Rachel Crowdy:* You feel that the government would employ as many men as are employed by private firms?

Mr. Lloyd George: Certainly.

4065. *Sir Thomas Allen:* I think the real point was that because of the private system of manufacture the employees could change over to other work which could not be done in a national factory engaged solely upon the creation of arms; they would have to stand off; whereas private manufacturers could put them on to some other work.

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Mr. Lloyd George: They would have to concentrate upon manufacture for civilian and other purposes, just as Krupps had to immediately after the War.

4066. *Sir Thomas Allen:* Would you, then, support the idea that national armament factories should not be disallowed, at any rate, the right to manufacture other commodities?

Mr. Lloyd George: I should be very doubtful of the wisdom of allowing them to go into the competitive market with government support. It is one thing to have a complete system of nationalisation, but I do not think it is a good thing to have a system whereby you should subsidise particular

firms which are competing with others, but they might manufacture things which are used for government purposes.

4067. *Sir Thomas Allen:* The government is a large buyer; for instance, the Post Office?

Mr. Lloyd George: Yes. There are a great many things they buy.

4068. *Sir Thomas Allen:* You see no objection to them manufacturing for state purposes?

Mr. Lloyd George: For state purposes, no; but I should think it would be unfair of them to manufacture and go into the competitive market.

Chairman: I think that is all, and we are much obliged to you for coming.

(Adjourned for a short time.)

On resuming—

Captain L. E. H. LLEWELLYN, C.B., O.B.E., R.N. (Retired), called and examined.

4069. *Chairman:* I understand you have prepared a statement, Captain Llewellyn?

Captain Llewellyn: I have, Sir.

4070. *Chairman:* Do you wish the Secretary to read it?

Captain Llewellyn: I think, Sir, if the Secretary read it, it would be more readily understood.

4071. *Chairman:* Very well.

The following statement was read:

The following is a statement of my experience in connection with manufacture and purchase of arms and munitions of war.

10 years Assistant Inspector and Inspector of Naval Ordnance at Woolwich Arsenal, at Sheffield and at Newcastle and Glasgow.

8½ years at Admiralty as Chief Inspector of Naval Ordnance with charge of all inspection of naval ordnance, mines, torpedoes, bombs, &c., and explosives and propellants.

8½ years Associate Member of Ordnance Committee.

8½ years member of sub-Committee of Committee of Imperial Defence dealing with actual and potential resources for the production of warlike stores for all services.

Private Manufacture and Trading in Arms.

It first becomes necessary to define what constitute "Arms" as it is certain that even if firearms, explosives, etc., are not available war may still be waged with sticks and stones; for practical purposes I would confine my remarks to finished ordnance, rifles, torpedoes, mines, bombs and shell, their propellants, explosives and components and to such material as may be readily completed into such stores, for example—gun and rifle barrels or tubes, punched and drawn shell hodies, mine spheres, torpedo air vessels.

If restrictions are to be effective then they must apply not only to the finished article but to the semi-finished material and relative components. For instance a gun up to 6-inch bore can be built up with prepared tubes in a few hours, or at most, days with very limited resources. I would therefore recommend that all vital components in any stage of manufacture that will permit of assembly into completed articles for use should be classed under the same heading as the finished weapon.

As to the advantages and disadvantages of state versus private manufacture and sale the following is a summary of views based on experience, with some reasons and facts.

ADVANTAGES.

State Manufacture.

(a) Some form of state factory is essential for production of trial and experimental stores, for repairs, for maintenance and for providing information essential to a proper check on costs, times and ease, or otherwise, of manufacture.

(b) Manufacture in state factories permits of work being kept secret, of improvements in methods, pattern and use being retained solely for the use of the state.

(c) Eliminates the incentive to fake or conceal defects on a large scale (petty fraud by individual workmen must always be guarded against whether in a state factory or not).

(d) A better control over progress is possible as the work has not to take its place with commercial and foreign orders, and changes in design that it may be desired to introduce while work is in progress can be more readily and effectively carried out at less cost.

(e) Strikes are less likely, lock-outs do not occur, and programme dates of completion, etc., are more likely to be adhered to, that is if the state factory is capable of producing from the raw material stage.

DISADVANTAGES.

State Factories.

(1) Concentration—but as matters stand this objection does not operate as trade manufacture is, with the exception of explosives and propellants and certain stores of lesser importance, in the hands of one combine and its associated companies. (Shell are not made at present by the combine—Vickers-Armstrongs—but by Hadfields and Firths; this it is understood is by arrangement between the companies, i.e., there is no competition and intense concentration). Moreover it is not advocated that the state should produce in a single factory or in a factory organised on the lines of Woolwich Arsenal which does a little of all or most classes of work. As to capacity for expansion the present state of affairs does not allow of rapid conversion to war output and utilisation of commercial resources, in that the bulk of trade production is in the hands of Vickers-Armstrongs, and therefore distribution of staff and key workmen would be less readily carried out than would be possible if the nucleus were held in a state factory. Generally on this point of concentration the advantages appear to be with state manufacture.

(2) Cost—here the advantage lies with trade manufacture unless the state factory is to be equipped and organised for production in peace time or a semi-commercial basis, i.e., for manufacture of material other than that of a definitely warlike character, and this could be done. For example, now all dockyard-built ships are supplied, or rather built from material made by contract, that is the plates, shafts, armour, etc., etc., but the plant required for heavy shafting is identical with that used for gun forgings, while that for the steel, i.e., the furnaces, primarily and principally, can be used for all purposes where medium or high quality steel is employed. For example, a furnace turning out steel ingots intended for rolling to sheets will also produce steel suitable for H.E. shell. In fact a state factory primarily intended for war stores production can, when orders for such stores

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are slack, produce a variety of other stores required for state use but at present bought. As to explosives the state at present is almost entirely dependent on trade supplies, again a combine, and has no available facilities for expansion of production, so that if it is concentration that is the disadvantage of state manufacture then we already have the full disadvantage under present conditions.

Further on the question of cost and efficiency, it is generally claimed by opponents of state manufacture that the state cannot produce as cheaply as the trade and that private enterprise gives progress in development which is not to be obtained from state factories. Figures and facts disprove these contentions. For example:—Woolwich Arsenal can and does produce at costs below the trade, that is when conditions are brought to a like basis, it being remembered that an organisation like the Royal Arsenal has a variety of functions to perform that no factory pure and simple is laid out for, or could carry out. Another example is that of Holton Heath cordite factory where the whole of the propellant requirements of the Royal Navy are produced. The price per lb. at which propellant is now being made would astonish trade producers, and many millions have been saved to the state by this factory in the past 17 years.

Moreover as to quality I may say that between 1895 and 1917 no advance was made in quality of propellants (during this period supplies were very largely obtained from private makers), and in 1917 it was found that not only was quality so bad as to be dangerous but that trade factories could not meet our quality requirements. The most revolutionary advances in manufacture have resulted from this state undertaking, and the whole progress, development and production has been the work of state servants. The Royal Naval torpedo factory is another good example of what the state can do in its own factory with state employees.

Another point in favour of state manufacture is the fact that the state is able to choose the location, size and nature of its factories—they need not be, as is essential in trade manufacture—in the large industrial areas mixed up with general commercial work, a great disadvantage. They can be placed in strategically suitable places and can be built in units designed for rapid expansion of skeleton working.

It must be remembered that in 1914-18 armament plant held by private makers did not lend itself to rapid and economical development, and had expansion and development been left to private enterprise the War would have been lost by 1916, in fact private manufacture failed when the load was applied.

ADVANTAGES.

Private Manufacture.

1. As a trade it offers opportunities for profit and is a means of increasing our export figures.
2. If in the hands of a number of manufacturers not working in rings or arrangements or combines then it ensures fair competition and lessening of costs with the maintenance of quality.
3. If in the hands of a number, etc., etc., it allows of wide distribution of work (not so now when armament work has ceased to be the trade of a dozen and is that of but a few).
4. It stimulates foreign trade in that those who tout and sell their arms more usually also have to offer stores of a purely commercial nature.
5. It widens the field for invention and research (but not to the extent that some manufacturers have claimed observing that the ideas, requirements and function of all war-like stores must, and do, primarily depend on the conditions of use and knowledge thereby acquired, i.e., the state).

DISADVANTAGES.

Private Manufacture.

- A. Leaving out all question of profit from the making of appliances intended for the destruction

of human life there appears to me to be definite evidence that the *sale* (and it is the offering for sale and selling rather than the making, that is more objectionable) of arms has increased the possibilities of war even if it has not actually caused war. For example, take Japan; but for the supply of arms and arms making plant and of staff to run such plant and teach the native workmen, it is obvious that Japan with its lack of mineral and material resources could not have become the menace to eastern peace that she has. Without the private sale of arms the South African war could not have taken place. Turkey, Bulgaria, Serbia, Roumania, Greece, Afghanistan, Bolivia, Paraguay, etc., etc., could not have embarked on their various wars during the last 50 years—the whole of the war requirements of their countries (as also China) were supplied by purchase from armament firms. If we stop private sale we stop small wars and it is small wars that lead to large, e.g., Serbia in 1914-1918, Italy and Abyssinia, and its risk of another European war. The evidence seems to clearly show that state manufacture will act against war risks, provided that it is the state only that sells and that sale from government to government be only through a committee of the League of Nations. Isolated action by one or two nations will only result in building up foreign production facilities and foreign profits.

B. Monopoly—this is a decided disadvantage of private manufacture. At present the state must not only buy all its raw material from the interested trades but also the bulk of its finished material, for example—gun forgings; these are almost entirely supplied by the Vickers combine, as also armour plate, explosives, torpedo air vessels, mines, bombs (shell by other trade concerns) and without the state being able to depend on competition in either price or rate of delivery. For example, *heavy armour piercing shell*, the essential weapon of our capital ships—these are solely produced by Hadfields Ltd. and Thos. Firth Ltd., both Sheffield firms, and working together. So complete is the monopoly strength of these firms that they have been able to dictate at will; for example, it is said that the A.P. shell is merely a patent—it is not—it is an article which entirely depends, for its efficiency, on the secret heat treatment it receives.

C. It is undesirable to allow private manufacturers to make profit on information obtained *free* from government sources, such however is the case—the private maker has no knowledge of USE, he obtains this from contact with government officers, from making government stores and from use of government designs and specifications; how else can he get it? For example, the modern shell is made by Messrs. Hadfields and Messrs. Firth, but these concerns do not possess a gun to fire from, a plate to fire at, or a pit or cell to fire into. Again, private makers of arms rely largely for technical knowledge on the officers of the fighting services whom they take into their employment. Vickers have many ex-officers including ex-inspectors, an ex-vice-president of ordnance committee, an ex-director of naval ordnance and an ex-member of army council. This appears undesirable especially when such officers have been—only a short time previous to engagement by the contractor—actually in a position to distribute government orders. A considerable interval should elapse between leaving state service and employment by a state contractor, but the system would disappear if state manufacture replaced private and then if expansion for war became necessary the essential technical assistance to the reserve or improvised factories could be directly provided by the state.

D. Quality—where manufacture is primarily for profit the first consideration must be low cost and saving on all possible occasions, i.e., minimum cost and minimum quality within the specification and the tendency is to try and get the state to accept something not quite as good as it should be; this tends to dishonesty on the part of individuals particularly

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when employed on a "tonnage" or output basis. I never encountered any deliberate attempt at concealment or malpractice or any attempt to force the acceptance of faulty material in a government factory. Moreover the employment of officials and workmen on an established basis, as in H.M. Dockyards, etc., tends to the production of sounder work, the workmanship is much the same but the product of government employees is, in my experience, more to be relied on.

E. Secrecy—private makers work foreign and British contracts side by side and it is impossible to preserve entire secrecy. For example in 1913 we were making 15-inch guns described and referred to as 13.5 inch, and in the same shops were guns 12-inch and 13.5-inch for the Japanese and Turkish governments; and similar work for Chile and Brazil. I personally saw a Japanese endeavour to take measurements of our drawings.

In 1921 we developed a new 8-inch gun and a few were ordered from Armstrong Whitworth—almost immediately an order for two 8-inch guns was placed or rather offered to this company provided that they were made at Newcastle (where our own order was to be executed). Sir W. G. Armstrong Whitworth & Co. declined the order on such terms. At the outbreak of war in 1914 the Turkish government had under construction in this country, two battleships armed with 13.5-inch and 6-inch guns identical with latest Admiralty design with shell and ammunition to suit. At the same period the Japanese had guns identical with our current designs as also the Chileans, Brazilians Argentines, Greeks, but the designs were not supplied from our government to them; and it is certain that the designs were not the production of the governments mentioned.

If each improvement in design is to pass to the trade and is to be offered by the trade (possibly with slight modification) to foreign governments: then such governments will buy and the armament race proceeds. If there is no sale then the smaller states cannot manufacture themselves and must gradually cease to be armed and many of the causes of war or threats of war will disappear. I submit that it is well to keep manufacture and sale as distinct.

4072. *Chairman*: In the last four lines you say, "If there is no sale then the smaller states cannot manufacture themselves and must gradually cease to be armed." That is pretty self-obvious, but what do you mean by "sale"? Do you mean sale by private manufacturers or sale by anybody?

Captain Llewellyn: Certainly sale by private manufacturers, and sale by government under conditions which were prevailing at the time and which were considered expedient.

4073. *Chairman*: I am afraid I do not follow.

Captain Llewellyn: My view was that the sale by private firms should cease, that, as I stated in the previous part of my evidence, the sale by the state should be regulated by a committee of the League of Nations or an international court which would decide as to the advisability or otherwise of each particular small nation having the arms they claimed.

4074. *Chairman*: Do you think you would ever get a consensus of opinion as to whether a state should have arms or not?

Captain Llewellyn: Judging by recent events I should say it is problematical.

4075. *Chairman*: Probably not?

Captain Llewellyn: Probably not.

4076. *Chairman*: We do not get much further forward then, by this suggestion?

Captain Llewellyn: We get further, to the extent that if private firms are not able to sell we do away with many of the disadvantages which are attached to the private offering of arms; that is the incentive to buy.

4077. *Chairman*: Yes. That is another question altogether, but on this question of there ceasing to be war because the state will not be able to

obtain arms, that depends not only upon the stopping of private manufacture but upon some general international consensus of opinion as to who shall have arms and who shall not.

Captain Llewellyn: Yes. If I may say so, the whole question of peace or war depends upon some form of international agreement.

4078. *Chairman*: Very well. May I turn back to where you are referring to the question that nowadays there is no competition in state factories?

Captain Llewellyn: Yes, Sir.

4079. *Chairman*: And you apparently hold the view that is very generally held that there is a great advantage in having competition if you want to regulate prices.

Captain Llewellyn: That was the experience before the War. There was quite considerable competition and very keen competition on the part of certain firms who were not in any combine or pool arrangement with the others, and it was distinctly open competition both as to price and rates of delivery.

4080. *Chairman*: Sir Eric Geddes put before us a new view altogether—at least, it was new to me; I do not know whether it has come before you. His view was that under present conditions, where a firm is in a position to undertake mass production and accurate costing, it is really better that the government, or whoever is the purchaser, should deal with one firm rather than with a number by way of tendering. This is the way he put it. He said that a firm that produces by mass production and can accurately cost every part of the process of production can tell to a penny what a thing costs them. Smaller firms who are not in the same position cannot manufacture so cheaply. Firm A—that is the big firm—knows from its costing that the smaller firms cannot produce other than at a price which, we will say, would be certainly 20 per cent. more than that at which they could produce, and therefore the larger firm says, "I am bound to undercut because I can produce 20 per cent. cheaper than they can, but if I quoted 15 per cent. above what I can manufacture at, and should be prepared to sell at, I would still be undercutting the smaller firms, and therefore I could get the contract and supply the article at a price higher than that at which I should have supplied it if the agreement had been that I should supply at a fair price to be ascertained by costing." That is rather a long statement; do you agree with that view?

Captain Llewellyn: Not altogether, Sir. The larger the plant and the more economically it is laid out the lower the cost of production, but that carried to the extreme places the state in the position of having to deal with one monopoly firm which says, "Very well, you cost our accounts. You offer us such and such a price." But they are in a position to say "We will not manufacture."

4081. *Chairman*: If you get to that stage, of course, you must nationalise, because you cannot get the goods, but short of that, merely on the question of price—

Captain Llewellyn: On the question of price, the larger the plant or the larger the facilities for laying out your plant, generally speaking, the lower the cost of production. But that does not altogether apply to certain classes of manufacture. There are certain classes of manufacture, certain stores which can be produced in small quantities if the first unit of plant is available, they can be produced at the same cost as that of the bigger stores. Take such a thing as a heavy gun. If you have the essential facilities for building one sixteen-inch gun, those same facilities will turn out 8 to 10 of those guns in a year and at a cost no more than if you had four of those units and were turning out 32 to 40 of those guns in a year. If it comes to smaller stores such as fuses or cartridge cases, the plant is not a very expensive one. It has been laid out, and was laid out in the late war, more or less on the basis of the unit.

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If you have a unit you can produce at an equal price in competition with the man who has 10 units; but if you have only a scrap unit made up of a collection of units, which was the position in 1915 and 1916 when all the odd machines in the country were put together to make units, then production is not so economical.

4082. *Chairman*: Then there is a passage in the next part of your statement dealing with capacity for expansion. You say "As to capacity for expansion, the present state of affairs does not allow of rapid conversion to war output and utilisation of commercial resources, in that"—this is the reason, is it not?—"the bulk of trade production is in the hands of Vickers-Armstrongs and, therefore, distribution of staff and key workmen would be less readily carried out than would be possible if the nucleus were held in a state factory." Does that mean that, because Vickers do so much civil work and because so many of their people are engaged in civil work, therefore they will not be able to expand as rapidly as a state monopoly. Is that it?

Captain Llewellyn: No, Sir. My intention was to convey the fact that, in the early days of the War, when factories were being set up and when firms which were not accustomed to munitions manufacture were brought into the business, it was difficult to induce the more experienced firms to part with their key men in order to show the new firms how to do the work; whereas with a state factory you can draft your men here and there, as required. Considerations of what is to happen to those men and their knowledge if they are transferred to a potential competitor do not enter into the question.

4083. *Chairman*: Most people assume that, in the event of war, there would be some form of conscription by which men would be moved about among private firms as well as others. Of course, we have learnt a lot by our experience in the last war.

Captain Llewellyn: Have we profited by that experience?

4084. *Chairman*: With regard to cost. You say "In fact, a state factory primarily intended for war stores production can, when orders for such stores are slack, produce a variety of other stores required for state use but at present bought." To what sort of things are you referring there?

Captain Llewellyn: Take furnaces employed for the production of mild steel for producing the ordinary high explosive shell. The bulk of that steel in the late war was produced by furnaces which had been employed up to that time for the production of steel rails, angles, bars, steel used in bridge building, railway lines and a variety of other commercial purposes, including shipbuilding. Those same furnaces could be employed for commercial work or for making certain types of definite armaments stores.

4085. *Chairman*: You are contemplating that this plant could be put to use to manufacture commercially?

Captain Llewellyn: I would not go so far as to say that they should be in competition with commercial manufacture, but there are a very large number of colonial and colonial government orders which at present go abroad, and my idea was that that if the state factory were slack on armament work, it could fill in with its available plant and occupy it with orders of a state nature which should, under normal circumstances, be sufficient to keep a nucleus staff fairly well employed.

4086. *Chairman*: You assume orders and you assume that they are non-commercial orders sufficient to keep the thing going?

Captain Llewellyn: I am assuming that the state factory I had in mind would be one which, taking a normal armament production over a period of years, would be fully employed.

4087. *Chairman*: I have never heard of this cordite factory at Holton Heath. Is that a government factory?

Captain Llewellyn: It is entirely a government factory, under the Admiralty.

4088. *Chairman*: What other factories are there for manufacturing cordite?

Captain Llewellyn: At Waltham Abbey there is a small factory for the production of army cordite and Imperial Chemical Industries have a factory at the lower end of the Firth of Clyde—Ardeer.

4089. *Chairman*: We were told about other cordite factories?

Professor Gutteridge: There was one at Stockton-on-Tees?

Captain Llewellyn: There were several. There was one at Southampton, there was one at Chilworth. I have not in mind all of them, but there were 6 or 7 before the combination of the big explosive firms into one combine. At that time the government requirements were obtained either from Waltham Abbey—which could only produce a very small amount—or by purchase from the trade. The result was, when it came to the War, that the requirements could not be met and large purchases were made in America at very high prices, and eventually Gretna was set up, at a very high cost.

4090. *Chairman*: Cordite production is now in the hands of Imperial Chemical Industries, is it not?

Captain Llewellyn: Yes, with the exception of the Admiralty's requirements, which are entirely met through the state factory.

4091. *Chairman*: Imperial Chemical Industries are in a position to manufacture satisfactory cordite?

Captain Llewellyn: For the army.

4092. *Chairman*: Or for the navy.

Captain Llewellyn: No. The conditions of manufacture of the types of propellant are so different that it was decided by a committee that sat in 1919 that a continuation of the Holton Heath factory under Admiralty control was essential.

4093. *Chairman*: So far as it is not already manufactured by government, there is no reason to assume that it would not be satisfactorily manufactured by Imperial Chemical Industries to meet such requirements as there are?

Captain Llewellyn: What their capacity now is I do not know but, judging by the requirements of the late war, I should say their capacity is not 1-50th of what would be the demand in a war on a scale such as the last one.

4094. *Chairman*: You say "It must be remembered that in 1914-18 armament plant held by private makers did not lend itself to rapid and economical development, and had expansion and development been left to private enterprise the War would have been lost by 1916." Everybody seems to agree that nobody anticipated either the amount of the demand or the rapidity with which development would be required. That is right, is it not?

Captain Llewellyn: Yes, Sir.

4095. *Chairman*: The private manufacturers failed because they did not anticipate and get ready. If the government monopoly had been in existence at that time and they had not anticipated it, they would have been in the same difficulty as private firms, would they not?

Captain Llewellyn: Not fully, I think. The state would then have had a number of key men available for distribution, which they had not. They would have had the accumulation of tools, gauges and other stores incidental to starting manufacture, which were held by a few individual firms and were not available for distribution. That alone would have ensured a six months earlier start with the big output than was possible under the conditions then operating.

4096. *Chairman*: But unless the government had anticipated what was to happen they would not have had the gauges to distribute.

Captain Llewellyn: It was the custom for each store to hold a duplicate set of gauges in addition to those required for their own operation but it was not considered necessary for the manufacturer to hold more than the two sets of gauges.

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[Continued.]

4087. *Chairman*: But such gauges as the government possessed they wanted themselves when war broke out.

Captain Llewellyn: Those gauges were issued but the change of pattern was the trouble we were up against in 1915.

4098. *Chairman*: Under the head "Private Manufacture: Disadvantages," you say "Leaving out all question of profit from the making of appliances intended for the destruction of human life there appears to me to be definite evidence that the sale (and it is the offering for sale and selling, rather than the making, that is more objectionable) of arms has increased the possibilities of war even if it has not actually caused war. For example, take Japan; but for the supply of arms and arm-making plant"—and so forth. Then you go on to say "Without the private sale of arms the South African war could not have taken place." Then, Turkey, Bulgaria and all the rest of them would never have gone to war. But that assumes, does it not, that nobody else would have supplied them with arms? Supposing the private manufacture and sale of arms had ceased and the manufacture of arms were entirely in the hands of the government, would you not say the government would have turned traders?

Captain Llewellyn: They might have.

4099. *Chairman*: Then all these troubles to which you have referred here would have occurred just the same, only the arms would have come from governments instead of through private people?

Captain Llewellyn: That is assuming that the owners of armament stocks were actuated by motives which were somewhat questionable, either political motives for helping a potential ally or for the sake of profit. My personal idea was that in dealing with the question of arms I had in view international agreement on the subject. I can quite see that without international agreement our failing to sell or manufacture merely deprives us of a very lucrative form of export.

4100. *Chairman*: Then you say: "Monopoly—this is a decided disadvantage of private manufacture. At present the state must not only buy all its raw material from the interested trades but also the bulk of its finished material." Supposing you abolish the sale of munitions manufactured by private firms, there is still the difficulty, is there not, about buying the raw material from interested trades? Assuming the state manufactures itself, you can only get over that difficulty by complete nationalisation, can you not?

Captain Llewellyn: Complete nationalisation of everything in the country. Take one article of which a great many people may not be aware—silk is an absolute essential to the firing of a gun because the cordite or propellant must be silk bagged. If you bag it in cotton you get an explosion. So the silk industry comes in there. To take it further, the tanning industry comes in. We must have leather; iron ore, coal. Unless you draw a line at a semi-manufactured or a semi-finished stage, I submit it is quite impossible to distinguish what constitutes armaments and what does not. A perusal of the contraband list at the end of the late war reveals something like 3,000 items which were considered warlike material.

4101. *Chairman*: Then you say: "It is undesirable to allow private manufacturers to make profit on information obtained free from government sources." Then you refer in the same paragraph to the question of government officers going into the employment of private firms. Assuming that there is to be no monopoly and that the government are to work in co-operation with private firms to the best advantage of everybody, then it is only natural, is it not, that the government will say to the private firm, "You make the gun. I am in possession of the range to test it and I will test it on my range." Is

there any objection to that if that is to be the system under which armaments are to be effective?

Captain Llewellyn: It seems to me that then you have reached a stage of government control of such an intense character that it almost amounts to nationalisation.

4102. *Chairman*: Is that a bad thing, what you call "almost nationalisation," "Next door to nationalisation"?

Captain Llewellyn: If it is going to restrict the possibilities of indiscriminate sale, then it is a step in the right direction.

4103. *Chairman*: I am troubled about the question of these people, the ex-officers to whose employment you see so much objection. I can see the objection as long as they are competing firms, because an ex-officer may go into a private firm and he may have friends in the office, and he may then go and use some influence to get a particular order for his firm, but assuming the government and the private manufacturers are working in co-operation there is no question of that, because there is no competition. What is the real disadvantage, in your mind, of a man going straight from the service to a private firm?

Captain Llewellyn: I think the advantage lies with the state. I think the state has the advantage if it staffs or partially staffs the firms who are going to supply its armament stores because it ensures that those firms have with them men who understand the use of the article, and without an understanding of the use of the article the manufacture is not likely to be so successful. But I think one has to bear in mind the fact that competition might arise. New armament firms grow up. It is not so many years ago that the one and only private manufacturer of guns was Armstrong Whitworth. It is within the last 40 years, I think, that Vickers came into the gun or armament trade. Then shortly before the war, in 1907, a new concern grew up—the Coventry Ordnance Works.

4104. *Chairman*: I quite agree conditions may alter.

Captain Llewellyn: Conditions may alter at short notice.

4105. *Chairman*: But assume conditions to remain as they are, I understand the first part of your answer is that you think it is rather an advantage.

Captain Llewellyn: I think it is a disadvantage that the conditions shall be so stabilised that there is no competition and that the state is really leasing or letting out the work to a private individual.

4106. *Dame Rachel Crowley*: I was rather interested in one sentence in the paragraph headed "Private manufacture: Disadvantages." "The evidence seems to clearly show that state manufacture will act against war risks, provided that it is the state only that sells and that sale from government to government be only through a committee of the League of Nations. Isolated action by one or two nations will only result in building up foreign production facilities and foreign profits." Do I understand from that that you are not in favour of state manufacture unless there can be international agreement?

Captain Llewellyn: That is roughly my view. I say that it is futile to attempt to restrict in this country if other countries are merely going to take what would have been our export trade.

4107. *Dame Rachel Crowley*: You cannot conceive of any international convention or agreement which would leave to governments the liberty of private manufacture or government monopoly?

Captain Llewellyn: I can conceive agreements, but I cannot from recent experience see much prospect of their being observed.

4108. *Dame Rachel Crowley*: You cannot conceive an effective international agreement which would leave it to the nation to decide whether they would have private manufacture or government monopoly in their own country?

Captain Llewellyn: It would be a pious hope in the present condition of affairs, no more.

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4100. *Dame Rachel Crowley*: You feel we ought not to deprive private manufacturers of the opportunity of export unless we can get international agreement?

Captain Llewellyn: Unless it is international.

4110. *Dame Rachel Crowley*: This is rather going back to what you and the Chairman have been discussing—the passage in which you say: “If in the hands of a number of manufacturers not working in rings or arrangements or combines, then it ensures fair competition and lessening of costs with the maintenance of quality.” I read that as implying to a certain extent that fair competition is not possible, and the lessening of cost is not possible, because you feel sure that manufacturers are all working in rings or combines. Is that a fair interpretation of that paragraph?

Captain Llewellyn: Yes. Take, for example, heavy guns. There are only two firms capable of producing heavy guns in this country, and the possible production of one firm is perhaps one-quarter to one-fifth that of the other firm; so that if the government go into the market and want to buy 40 15-inch guns, whatever the price offered they know that the output of one firm cannot be more than (we will say) six guns in the next 18 months, so that the balance of the order must necessarily go to the other firm.

4111. *Sir Kenneth Lee*: You say that Woolwich Arsenal can and does produce at costs below the trade, that is, when conditions are brought to a like basis. What evidence have you of that?

Captain Llewellyn: A recollection of the costed prices which were invariably submitted by the Arsenal at the time the tenders were placed with the various contracting firms in existence when I was the chief inspector. Those prices were invariably passed through me for a certificate that the quality of the article was likely to be, and the rates of delivery were likely to be, up to the Admiralty specification.

4112. *Sir Kenneth Lee*: What date are you talking about?

Captain Llewellyn: It is eight years since I left the Admiralty.

4113. *Sir Kenneth Lee*: Does that hold to-day?

Captain Llewellyn: I should say, knowing what was in progress at the time, that the costs of manufacture have probably been reduced considerably, as there was considerable re-organisation going on during the whole of the period from 1919 to 1928.

4114. *Sir Kenneth Lee*: May not the private manufacturers now be capable of producing cheaper than the Arsenal?

Captain Llewellyn: Take, for example, cordite.

4115. *Sir Kenneth Lee*: I am not asking about cordite.

Captain Llewellyn: We will take another example—gauges. Up to 1924 we bought our gauges, or had them made to a limited extent in Woolwich Arsenal; and owing to the difficulties of obtaining supplies and deliveries and the high cost, I was able to induce the Admiralty to spend something like £40,000 on building and equipping a gauge factory at Sheffield. I was able to produce gauges at approximately half the price I could buy them at, with everything costed and every charge brought in.

4116. *Sir Kenneth Lee*: Yes, but that is nothing to do with Woolwich, is it?

Captain Llewellyn: It was to relieve Woolwich, or to relieve the extension of the gauge making facilities at Woolwich, which at that time were not sufficient for meeting more than a very small part of the requirements. I am not in a position, speaking from memory, to give the actual figures of cost for fuses and guns; but they can be ascertained, and it was a definite rule that the Arsenal should not receive orders unless their prices and conditions of delivery were at least as favourable as those of the contractor, and I think that policy has remained.

4117. *Sir Kenneth Lee*: We have had rather different evidence about the conditions, but you have no specific evidence that Woolwich does produce cheaper?

Captain Llewellyn: Speaking from memory only—it would have been improper of me to have made a record of the prices and to have retained them for my own use after—

4118. *Sir Kenneth Lee*: But you make a specific statement there?

Captain Llewellyn: Which can be verified if the official figures are produced.

4119. *Sir Kenneth Lee*: You are speaking of about eight years ago?

Captain Llewellyn: Yes, but I have no doubt the official figures are still available.

4120. *Mr. Spender*: I am not quite sure from what you have told us what exactly you are in favour of at the present time. Are you, with or without international agreement, in favour of our going on to a state monopoly?

Captain Llewellyn: Not to a state monopoly. I think a state unit capable of controlling any monopoly of the trade; that is, of being able to say: “Very well, if you will not make at our price we will”; in other words, to be able to regulate the price by always having a competitor in the form of the state.

4121. *Mr. Spender*: That is practically what Sir Eric Geddes recommended to us; he recommended a state establishment or laboratory which would specially charge itself with gauges, machine tools, and specifications. You would go further than that?

Captain Llewellyn: Yes.

4122. *Mr. Spender*: You would enlarge, say, Woolwich or the dockyards?

Captain Llewellyn: I am not in a position to speak of the dockyards. I have had very little to do with them of recent years.

4123. *Mr. Spender*: But the same principle would apply?

Captain Llewellyn: Yes, the same principle applies there; and so far as Woolwich Arsenal is concerned, they could turn out heavy guns provided they buy the material, and fuses and cartridge cases.

4124. *Mr. Spender*: They would have to be in a position to say to a private firm: “Your price is too high,” and under your scheme the Arsenal would have to be enlarged and have sufficient reserves of labour, and so forth, to be able to execute the order themselves?

Captain Llewellyn: That is my view.

4125. *Mr. Spender*: Then with regard to the employment of ex-officers, and so forth. Supposing it to be, as it obviously is, to the advantage of the government that there should be close touch between them and the manufacturers—that there should be a liaison—would not it be more satisfactory that the government itself should nominate its nominees on the boards of these companies?

Captain Llewellyn: That is the course I should prefer myself. I certainly think it is more desirable.

4126. *Sir Philip Gibbs*: You mentioned the cheapness of the cordite which is made at Holton Heath. Would that cheapness be due to the elimination of private profit or to some new system of manufacture?

Captain Llewellyn: It is due to the system of manufacture which has been brought to the cheapest possible figure through intensive organisation, and, of course, there is no profit.

4127. *Sir Philip Gibbs*: Would the question of profit make a considerable difference?

Captain Llewellyn: If you take the present price as being half the previous price it allows a very big margin for profit.

4128. *Sir Philip Gibbs*: I was wondering, for instance, whether the I.C.I., which, after all, is a

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highly organised business, could also make ordite at a similar price if they used the same methods.

Captain Llewellyn: I should think probably not; and, if I may say so, another point is that it would be very undesirable to give away the details of our manufacture to anyone.

4129. *Sir Philip Gibbs:* I was coming on to that point of secrecy. From one or two things you said in your preliminary statement it rather seemed to me that the private firms make use of government designs, and they manufacture, perhaps, a multiple series of such designs in the way of guns, and so forth, and sell them to foreign countries?

Captain Llewellyn: Yes.

4130. *Sir Philip Gibbs:* And that, therefore, the present system of private manufacture does not ensure secrecy of government designs. Do you go as far as that?

Captain Llewellyn: Whether secrecy could be observed in any event I am not in a position to say. But as it stands at present, we will take designs, they are primarily the outcome of the views of the people who use the weapons. They say: this weapon wants this, that, or the other done to it to bring it up to our requirements. Those ideas are embodied in a draft design and are sent to the manufacturers for their remarks and suggestions; but without those draft or sketch designs, without a statement of the functions that the article has to perform, the man who has no knowledge of the use of the weapon could not possibly suggest the improvements, and those designs are worked up and eventually brought into manufacture, and later if a foreign government requires a gun I think it is natural it is offered something which is fairly up to date. It might not get exactly the latest weapon, but if it is only two or three years behind there will still be ships in our service which carry weapons which are of an earlier pattern still.

4131. *Sir Philip Gibbs:* Then, following on from that question, would you think that there is a continuous development in design and in the efficiency of the design coming from the private manufacturer? Judging from your previous answer I should say no?

Captain Llewellyn: No; I think the state can take the credit of being the prime mover in all improvements in design and the use of armament stores.

4132. *Sir Philip Gibbs:* That is contrary to a great deal of the evidence we have heard from witnesses who are in favour of private manufacture, and they all lay very great stress on the continued improvement of design arising from private manufacture. You do not agree with that?

Captain Llewellyn: I do not agree. I cannot call to mind any definite radical improvement which is traceable to original ideas of private concerns.

4133. *Sir Philip Gibbs:* So that I imagine our Royal arsenals and dockyards and government laboratories are really the controlling brain in design?

Captain Llewellyn: That is my view. Our research departments at Woolwich, and our design departments at Woolwich for dealing with armament stores, are the prime movers in initiating improvements, and are certainly the deciding factor when it comes to deciding whether any device which is submitted for adoption is suitable or is workable. There are a number of inventions which come in which are not workable, and a number of drawings are sent in which, if the article was produced, could not be used. All those things have to be modified by the designing staffs of the Admiralty and the War Office.

4134. *Sir Philip Gibbs:* That is very interesting, but it is extraordinarily different from a great deal of evidence we have heard, especially from what one might call technical witnesses, who all seem to defend private manufacture from one aspect, and that is the efficiency of design.

Do you think in fulfilling contracts private firms are apt to use slack work or cheap material in order to fulfil a contract, speaking generally—I do not want specific instances?

Captain Llewellyn: Generally I should say that the standard of workmanship as turned out from a machine is approximately the same, because the workmen, whether they are employed in the arsenal or elsewhere, are trained in much the same methods of work and the machines are much the same; but there is a tendency where a man is involved in profit or loss to try and get the inspector to take something which is not quite as good as it might be. I have in my mind cases where private manufacturers have deliberately rejected material because they have known it to be likely to be unsafe; I have had other cases where they have deliberately tried to get past my inspection, material which was obviously unsuitable; but I have never in my experience found a responsible person in a state factory asking me for the acceptance of something which obviously was not suitable.

Sir Philip Gibbs: That seems to me to be a very strong criticism of private manufacture.

4135. *Chairman:* You do not say that is general, do you, in private manufacture? Private manufacturers as a rule do not seek to pass off bad stuff?

Captain Llewellyn: I could produce a good many examples of instances where material has been put forward which should not have been, and the distribution of such efforts has been fairly wide.

4136. *Professor Gutteridge:* You do not suggest it is the rule though?

Captain Llewellyn: It is by no means the rule.

4137. *Chairman:* Inspectors make mistakes like other people, do they not?

Captain Llewellyn: They are not infallible.

4138. *Chairman:* I agree. You must not put it all down to the private manufacturer because he and the inspector do not always agree?

Captain Llewellyn: It is not a question so much of agreement, but there are certain instances of fact.

4139. *Chairman:* I only want to stick up for the general run of manufacturers. I do not believe the general run of manufacturers try to pass off bad stuff.

Captain Llewellyn: I do not think they do.

4140. *Chairman:* That is not the reputation of manufacturers in this country.

Captain Llewellyn: I do not wish to convey the impression that they do.

Chairman: We are agreed.

4141. *Sir Philip Gibbs:* Do you think a good many of the dud shells in the War were due to the imperfect quality of the material, or to carelessness of workmanship?

Captain Llewellyn: A combination of the two—ignorance very largely.

4142. *Sir Philip Gibbs:* But not due to the corrupt fulfilment of contracts by poor material?

Captain Llewellyn: I have one very glaring example in my mind, to which I think I had better not refer, of deliberate faking on a large scale; but, generally speaking, the faults were those of ignorance, and those faults were not detected largely because the supply of skilled examining and inspecting staffs was extremely limited.

4143. *Sir Thomas Allen:* Do you think those faults would be eliminated if there was a national factory?

Captain Llewellyn: I think so, due to the fact that in a national factory you would be working with men accustomed to that class of work. Perhaps I may give a very easily understood example of high explosive shells for 18-pounders. They were made by a firm of steel makers—that is, the bars before they were turned into shells. Those makers had a very high reputation, but a large number of the failures were traceable eventually to the fact that the leading hand in charge of a certain operation wanted to get on with the work quickly and

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he turned the hose on to the hot steel, with the result that he hardened them and made them brittle. It was an operation which was done with the very best of intentions, but it had very undesirable results. That, I think, would not have occurred in a state factory where the men operating those various processes would have known that such a thing was not only not allowed, but involved danger.

4144. *Sir Thomas Allen*: But I do want to distinguish between a fault due to lack of skill and craftsmanship and a fault being intentional.

Captain Llewellyn: It would not be his intention—not by any means.

4145. *Sir Philip Gibbs*: I did not quite understand one of your answers to the Chairman in which he talked about the necessity of perhaps nationalising the elementary origins of weapons as well as the finished weapon itself. Might I ask you whether, in your own view, you think it is easy to draw a line between the raw materials of the weapon and the finished article?

Captain Llewellyn: It is not easy, but it is not by any means very difficult.

4146. *Sir Philip Gibbs*: You think it would be possible—?

Captain Llewellyn: —to draw a line. There are certain operations without which a potential weapon is quite useless. The operation of rifling the inner tube turns it from a pop gun into a dangerous long-range high velocity gun, and it is a very simple operation to define.

4147. *Sir Philip Gibbs*: When, for instance, you talked about the need of silk for explosives, do you see any difficulty in your own mind in the government controlling the production of explosives, but not controlling silk?

Captain Llewellyn: The production of that particular form of silk cloth should be a very easy matter.

4148. *Professor Gutteridge*: Is that what is called shalloon?

Captain Llewellyn: Yes.

4149. *Professor Gutteridge*: Is not that made separately from other kinds of silk?

Captain Llewellyn: The original raw material is silk.

4150. *Sir Philip Gibbs*: You take the line—in fact you definitely say—that private manufacture failed at the beginning of the War. Do you think if there had been state factories exclusively in this country we could have expanded more rapidly than we did under that system?

Captain Llewellyn: I think we should have expanded more rapidly, but we should also have failed almost to the same extent because the demand was not foreseen. The Admiralty requirements, I may say, were to a certain extent foreseen, and the orders placed by the Admiralty on the morning of the 5th August were sufficient, so far as Armstrong-Whitworths were concerned, to fill their works for nine months to the total exclusion of any army orders which came in later. The Admiralty were rather wide awake in that respect; they had their orders ready on the morning of the 5th August; I handed them to the chairman of the company and they were immediately put in hand. The subsequent failure to give deliveries was not the fault of the private firms. They made every possible effort, and I think that needs to be borne in mind. They made a very great effort and did everything possible to give the production, but they were loaded with orders poured in upon them from every source for every sort of weapon, and a multitude of patterns which no one had seen or tried out, and it became impossible for them to decide on their own account what was to be given preference. It was the lack of co-ordination between the services in regard to supplies and the rate of delivery which helped the confusion and what is termed the failure of private enterprise, but it was not failure due to inefficiency, and it was not failure due to neglect or lack of skill.

4151. *Sir Philip Gibbs*: Do you think we have avoided those difficulties in future by the lessons of the late war? Do you think the services now are fully aware of that, and that there is a system working now which would obviate that long drag and delay?

Captain Llewellyn: I still think the system could be improved upon if the state were a larger producer of armament stores itself.

4152. *Sir Philip Gibbs*: I want to ask you rather a general question, and it is this: Supposing it is impossible to establish a state monopoly of armaments, can you see any half-way house; can you see, for instance, a ministry of supply controlling the production of arms in this country. Have you thought that out?

Captain Llewellyn: Yes, I have thought about it very carefully. I am afraid a ministry of supply involves such tremendous figures that it is impossible for an individual, or even a collection of individuals, to do the allocation, which was the trouble in the late war, so as to please the various fighting services; they are all clamouring for their own particular requirements, and how is any one individual to decide what is the urgency of this particular article, and so on? It seems almost impossible to imagine that such a person could be found, and it must eventually come to an individual. I think the present system of each service more or less controlling its own requirements subject to common purchase is a very good working one.

4153. *Sir Philip Gibbs*: Are they under the control at all of the Committee of Imperial Defence at the moment—do you know?

Captain Llewellyn: That I cannot say at the present time—previously, not.

4154. *Sir Philip Gibbs*: Because there have been various suggestions put before us by important people of shadow ministries and ministries of supply, and boards of armaments, all of which have for their object first of all the total control by the government over the possibilities of expansion and manufacture, and especially, as a matter of fact, the rapidity of expansion in time of war. You have not thought that out yourself?

Captain Llewellyn: A sub-committee of the Committee of Imperial Defence deals with that particular aspect of production, and it sits continuously dealing with the figures which are returned from time to time of actual and possible production and making up the statement of potential resources from day to day, so to speak; but it merely deals with the possible sources of supply and the quantities; it does not deal with the allocation, and, after all, the allocation must depend on the changing circumstances from day to day in any particular time of war.

4155. *Sir Philip Gibbs*: Might I go back to the last paragraph of your statement, especially the historical aspect, the effect of private export in creating wars in the past. With regard to the South African war, do you happen to know who armed the Boers?—

Captain Llewellyn: I believe it was almost entirely Krupps and Creusot—German and French.

4156. *Sir Philip Gibbs*: It was not done within your knowledge by the governments; it was actually the private enterprise of Krupps and Creusot?

Captain Llewellyn: Creusot would be private enterprise.

4157. *Sir Philip Gibbs*: With regard to the Balkan wars, do you think, first of all, the wars of 1912 between Serbia and Bulgaria against Turkey, and then afterwards Serbia and Bulgaria against each other were made possible by the private sale of arms?

Captain Llewellyn: Of course with those small nationalities their industry is war, or has been; and it is very difficult to say they would not have fought in some way or another, even if they had been refused merely rifles and bayonets; but there comes

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Captain L. E. H. LLEWELLYN, C.B., O.B.E., R.N. (Retired).

[Continued.]

a time when, if they cannot get any of the modern weapons, their war becomes a matter of by no means such great importance, even if there is a war.

4158. *Sir Philip Gibbs*: It is rather accepted now historically that the Balkan wars were the sort of prolude to the Great War, and therefore what you have said has struck me very much, because it seems to me to be a very strong argument, and you still maintain that view, do you?

Captain Llewellyn: Reading the historical accounts of those wars and the lead-up to the condition of affairs in Serbia, which was very largely in a state of ferment following on the Balkan wars, it seems logical to assume that they were somewhat the cause—I will not say the War was caused by them—

4159. *Sir Philip Gibbs*: A contributory cause?

Captain Llewellyn: It contributed to the other causes of war.

4160. *Sir Thomas Allen*: On the question of relative costs, have you any system of costings at Woolwich which would enable you to compare like with like with private manufacture?

Captain Llewellyn: I believe the figures are arrived at on a strictly comparable basis, allowing for the fact that some parts of Woolwich Arsenal are retained as a store house, others for repair work, and others on an emergency basis for possible production, and bringing down the figures to what was accepted as a comparable basis. What the percentages were I am not in a position to say.

4161. *Sir Thomas Allen*: You lay great stress upon the importance of secrecy. Is it not true to say that any invention of a private manufacturer may be made secret by a government purchase?

Captain Llewellyn: If it is a process which is readily describable, but there are certain secrets which are very difficult even to commit to paper.

4162. *Sir Thomas Allen*: I understand also that the national factory is open (say) to another government, that it may send its experts and have a good look round. Is there any possibility of keeping secrets under a system of that character?

Captain Llewellyn: There are certain secrets which have been kept from me at various times through not being able to see certain processes. It does not require a drawing or even very definite dimensions in certain processes of shell hardening to enable you to arrive at the true secret which gives the success. Most of those processes which are worked out in the manufacture of a modern shell are arrived at by trial and error, and a great deal of it is merely in the heads of a few individuals, and I doubt very much whether it would be possible to commit certain information to paper.

4163. *Sir Thomas Allen*: We have been told here from time to time that Woolwich has been backward for very many reasons and it could not hope to compete with private firms.

Captain Llewellyn: That is so.

4164. *Sir Thomas Allen*: Could you give us any reasons why that is so?

Captain Llewellyn: I think the financial reason is primarily at the bottom of it. The cost of equipping Woolwich Arsenal to make the modern types of armour-piercing shell would be very very high, and if the article could be bought satisfactorily elsewhere and money is short I suppose the considerations of money have over-ruled any other considerations.

4165. *Sir Thomas Allen*: Have you been handicapped at all by the pressure of private firms to have work given to them, and consequently Woolwich being kept relatively idle?

Captain Llewellyn: So far as these particular shells to which I have been referring are concerned, Woolwich has not been able to make them, and the fact that it has not been given the facilities has put the manufacturer in the position of being able to say: "Well, we have the monopoly," which they have. Had the money been spent in keeping the state factory as efficient in that particular

department as the private manufacturers there would not have been the monopoly which at present exists.

4166. *Sir Thomas Allen*: What really do you mean by efficiency?

Captain Llewellyn: New plant, modern plant, on ideas which have been developed and fundamentally changed in the last 15 years.

4167. *Sir Thomas Allen*: Would you say that private enterprise is more advanced in that particular direction at the present time?

Captain Llewellyn: Most decidedly.

4168. *Professor Gutteridge*: One question about the Holton Heath cordite factory. You say that the price per pound at which a propellant is now being made would astonish trade producers. What method of comparison have you adopted?

Captain Llewellyn: The price paid by the Admiralty and price cost to the Admiralty.

4169. *Professor Gutteridge*: I thought you told us the Admiralty did not buy cordite?

Captain Llewellyn: They used to buy it; they do not now.

4170. *Professor Gutteridge*: How long ago is it since they bought it?

Captain Llewellyn: I should think the last big purchase would be in 1918.

4171. *Professor Gutteridge*: So you are taking 1918 as the year for the trade price?

Captain Llewellyn: No, I should take the average price on a pre-war basis.

4172. *Professor Gutteridge*: Over the pre-war years?

Captain Llewellyn: Yes.

4173. *Professor Gutteridge*: What figure are you comparing with that—the price at the present day?

Captain Llewellyn: Yes.

4174. *Professor Gutteridge*: Is it not possible that there may have been marked improvements in private methods of manufacture?

Captain Llewellyn: It is possible, but I cannot imagine—

4175. *Professor Gutteridge*: I only wanted to know what your comparison was.

Captain Llewellyn: My comparison is what we used to pay before the War and the price to which it has now been reduced. It is now so low as to be a surprise to all of us who were in any way interested in that process of manufacture.

4176. *Professor Gutteridge*: Are you quite sure that I.C.I. do make cordite?—I am under the impression that they do not.

Captain Llewellyn: They used to make it.

4177. *Professor Gutteridge*: At the present time I mean.

Captain Llewellyn: I do not think at the present time there is any demand.

4178. *Professor Gutteridge*: My recollection of the evidence given by I.C.I. was that although they used cordite for filling small arms ammunition they got the cordite elsewhere; if it was a government order they got it from the government, and so on.

Captain Llewellyn: Cordite stored under certain conditions lasts for a great many years, and the annual consumption of cordite by the land forces is very small.

4179. *Professor Gutteridge*: Mr. Haldane had a walking stick made of it, did he not?

Captain Llewellyn: You could. The peace time consumption of cordite is negligible for the land services. The Admiralty consumption of cordite is very much higher because so many heavy guns are fired. There is a certain turn over of cordite—I cannot say whether it is being done now, but we were supplying surplus naval cordite for army purposes. It is quite possible that that is being done still, in which event there would be no necessity to purchase over a long period of years from the trade.

4180. *Professor Gutteridge*: I am not quite sure whether I understood you correctly or not, but I rather gathered you said improvements in design do

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Captain L. E. H. LLEWELLYN, C.B., O.B.E., R.N. (Retired).

[Continued.]

not come from private firms. You made rather a general statement?

Captain Llewellyn: Generally speaking, I adhere to that, that the main improvements, the fundamental improvements, new weapons and new ideas do not come from outside.

4181. *Professor Gutteridge:* What about the Bren machine gun?

Captain Llewellyn: I do not know it.

4182. *Professor Gutteridge:* That is a new machine gun, the invention of a private firm.

Captain Llewellyn: That is since my time, but the heavy modern gun is certainly not the production of the trade.

4183. *Professor Gutteridge:* I am not saying everything is, but there are things like the Lewis gun, for instance, and the Stokes gun. They were not designed in the government factories?

Captain Llewellyn: I do not know that they were designed by armament firms; I think they were rather designed by private individuals.

4184. *Professor Gutteridge:* That is what I mean; but they were not designed in the government factories.

Captain Llewellyn: Those same resources of tapping intelligence would be available whether the state was the manufacturer, or whether it was not.

4185. *Professor Gutteridge:* I quite agree. I only wanted to know how far you were going when you said that practically all improvements in design now came from the state factories. That is what I was rather challenging.

Captain Llewellyn: I would not put it so generally as that. I say generally speaking development depends on the state.

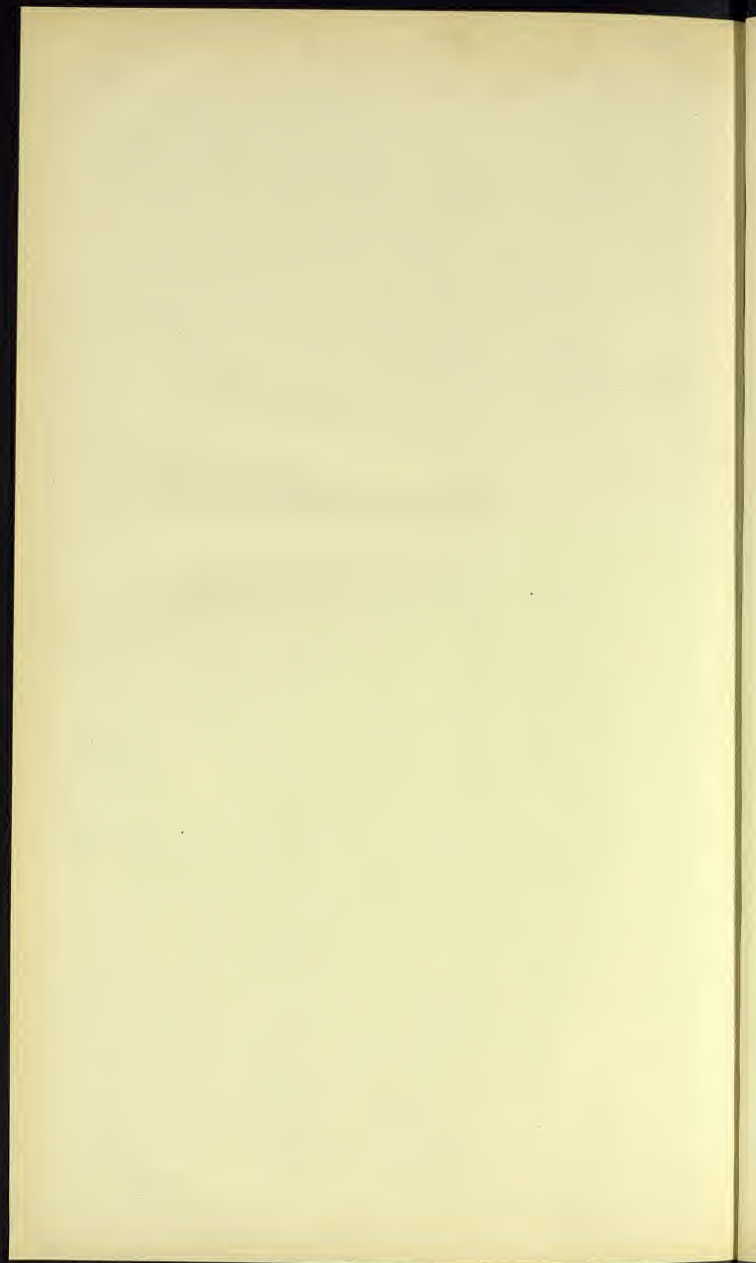
4186. *Professor Gutteridge:* Do not you think you are rather hard on the small states. Do you think it would have been better if Venice had remained under the Austrians and the Greeks had still remained under the Turks?

Captain Llewellyn: I think, perhaps, we should have been happier.

Professor Gutteridge: If that is your attitude I have no more to say.

Chairman: That is all, thank you. We are much obliged to you for coming.

(Adjourned.)



ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

19

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

NINETEENTH DAY

THURSDAY, 7TH MAY, 1936

WITNESSES—

ON BEHALF OF THE NEWSPAPER PROPRIETORS
ASSOCIATION LTD.:—

THE HONOURABLE ESMOND HARMSWORTH (CHAIRMAN).

SIR THOMAS MCARA (SECRETARY).

MR. R. C. SKRINE STEVENSON, FOREIGN OFFICE.

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

NINETEENTH DAY

Thursday, 7th May, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., LL.D., R.R.C.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

The Honourable Esmond HARMSWORTH and Sir THOMAS McARA, representing the Newspaper Proprietors' Association, Limited, called and examined.

4187. *Chairman*: Gentlemen, as you know, of course, in the Report of the First Committee on the Private Manufacture of Arms (Temporary Mixed Commission) amongst other things they refer in general to the objections that are raised to untrammelled private manufacture and amongst other objections they include this, that armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries. I understand that your object and desire in coming here is to give us information with regard to the position of the Press in this country. I understand that you two gentlemen represent *The Times*, *Daily Telegraph*, *Morning Post*, *Daily Mail*, *News Chronicle*, *Daily Express*, *Daily Herald*, *Daily Mirror*, *Daily Sketch*, *Financial News*, *Financial Times*, *Morning Advertiser*, *Sporting Life*, *Sportsman*, *Evening Standard*, *The Star*, *Evening News*, *News of the World*, *The Observer*, *Sunday Times*, *Sunday Dispatch*, *Sunday Express*, *Reynolds's*, *The People*, *Sunday Graphic* and *Sunday News*, *Sunday Pictorial*, *Sunday Referee*, *Sunday Sportsman*. And there may be others.

Sir Thomas McARA: That is the complete list.

4188. *Chairman*: You have prepared a statement,* which we have before us, but I understand, Mr. Harmsworth, you desire to make a short statement.

Mr. Harmsworth: I thought perhaps I would make a statement which might do away with some of the questions, if you would prefer that.

4189. *Chairman*: Yes, we should prefer to hear your statement.

Mr. Harmsworth: Am I right in imagining that the information that you require is whether newspapers can be influenced in any way by armament firms?

4190. *Chairman*: Whether they are or can be.

Mr. Harmsworth: Whether they are or can be.

4191. *Chairman*: In this country.

Mr. Harmsworth: In this country. I cannot speak, of course, for any newspapers outside.

4192. *Chairman*: No.

Mr. Harmsworth: Well, Sir, this is the statement I have prepared. May I read it?

4193. *Chairman*: Yes.

Mr. Harmsworth read the following statement: I have been asked to come here to-day to give evidence on behalf of the national newspapers, in

order, I presume, to clear up any misconception there may be as to our attitude towards armaments firms, or any conceivable kind of profit which might accrue to newspapers either through large sums being spent on armaments or in the event of war itself breaking out.

None of the members of the Newspaper Proprietors' Association are connected, either directly, or indirectly, with any armament firm.

None of the directors of any of the companies who are members of our association are either directors or personally interested in any armament firm or firms.

None of the majority shareholders of the said companies are personally interested in any armament firm or firms.

Advertising carried by the national newspapers paid for by armament firms is negligible.

There never has been—there is not—and there never will be—any pressure of any kind which armament firms could possibly bring to bear, either directly, or indirectly, on national newspapers which could influence their policy in any way.

No industry in the country is probably more adversely affected by an outbreak of war than the newspapers.

Although in war it may happen that the demand for newspapers is increased, it is unnecessary for me to inform you that the profits of newspapers do not arise from their sales but from their advertising revenue. This advertising revenue would immediately be affected adversely.

During the late war, besides the shrinkage in revenue caused by the falling off of advertisements, the newspaper industry had to cope with a tremendous increase in the cost of raw materials.

I find that the average price of stereotype metal, pre-War, was £32 10s. At the end of 1918 it was £56.

The average price of linotype metal, pre-War, was £23 10s. At the end of 1918 it was £45.

The standard price of news print in 1914 was 1d. per pound, equivalent to £9 6s. 8d. per ton. During the war period this rose to 4½d. per pound, equivalent to £45 10s. per ton.

Mechanical pulp rose from 42s. in 1914 to 110s. per ton in 1917. In 1918 the pulp had to be taken dry, owing to the restriction on freights, which made the price about £26 per ton f.o.b.

Sulphite pulp was bought in 1914 for £7 5s. In 1918 it was £44 per ton; and in the latter stages of the War it was not unknown for mills having purchased their pulp f.o.b. to have paid £12-£15—and

* Appendix I, p. 568.

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The Hon. ESMOND HARMSWORTH and Sir THOMAS McARA.

[Continued.]

even £20 per ton to get the pulp over. In 1918, therefore, the average cost of sulphite would not have been far short of £60 per ton as against £7 5s. pre-War.

Mechanical pulp must have been costing somewhere about £35 per ton as against 42s. per ton pre-War.

These figures will give an indication of the enormous difficulties confronting newspaper enterprise in time of war.

From the motive of purely self-interest, newspapers would be entitled to oppose any political policy tending towards war.

On the question of whether armaments should be manufactured by private enterprise or by the government, as I represent here to-day newspapers of every shade of political thought, it would not be proper for me to give an opinion.

4194. *Chairman*: Of course one knows that newspapers do take a strong line upon which there is difference of opinion in reference to armaments and so forth, but you come here to tell us that those opinions are perfectly genuine and unbiased opinions and in no way influenced by any armament firm?

Mr. Harmsworth: Yes.

4195. *Chairman*: That is the only question I wish to ask.

Dame Rachel Crowley: I have no questions either, Mr. Chairman. I feel as you do, that it would not be the influence of armament firms that would affect the opinions of the newspapers but much more their political bias, with which we are not concerned to-day.

4196. *Mr. Spender*: Your Association represents only the London newspapers?

Mr. Harmsworth: Only the national newspapers.

4197. *Mr. Spender*: As regards the provincial newspapers, you do not speak for them but one might say that practically all that you have said would apply to them also?

Mr. Harmsworth: I should say it would certainly apply.

4198. *Sir Philip Gibbs*: I accept everything that you say, Mr. Harmsworth. I have one query in my mind on the general argument of the great increase during war in the cost of the material used by the newspapers. I should like to ask, how do you reconcile that with the fact that certain newspapers in other countries, which need not be specified, do

seem to incite their nations to warlike courses, in spite of the fact that they also would find the cost of their material enormously increased during war time.

Mr. Harmsworth: I should not like to make a reflection on any foreign newspaper, but, of course, in answer to that question, some foreign newspapers are not as advantageously placed as the English newspapers. By that I mean that the advertising revenue in a country like England is very, very great and our newspapers are therefore correspondingly prosperous. I should say that of America, too. But, of course, there are places in Europe where the advertising revenue is bad and newspapers are poor, and perhaps in those cases the temptation is great.

4199. *Professor Gutteridge*: Is it not a fact also that in some countries there are too many newspapers in proportion to the population?

Mr. Harmsworth: Yes; in some countries abroad newspapers are started and run purely for political reasons and not as an industry. I think in this country we can say it is entirely an industry. Although they represent different shades of opinion, certainly there is no national newspaper which is run purely for the political opinions of its proprietors and not also with a view to its being an industrial undertaking.

4200. *Sir Thomas Allen*: As there is practically only one purchaser of armaments in this country, have you any revenue at all from the advertising of armaments?

Mr. Harmsworth: It is always difficult to make a reply to a question like that. Take the case of the Rolls-Royce Company, which I believe manufactures engines for aeroplanes in addition to manufacturing motor cars; of course its motor car advertisements appear in the newspapers, but not the advertisements of its manufacture of aeroplane engines. They are made merely for the government, and—luckily for the company—they do not have to advertise their aeroplane engines.

4201. *Professor Gutteridge*: Even in the trade supplements you do not get advertisements of armaments as such, do you?

Mr. Harmsworth: No.

Chairman: Thank you. We are very much obliged to you for your statement, and, of course, your written communication will form part of our proceedings.

(The witnesses withdrew.)

Mr. R. C. SKRINE STEVENSON (Assistant Adviser on League of Nations Affairs, Foreign Office), called and examined.

4202. *Chairman*: I understand you come here representing the Foreign Office. You submit two papers?

Mr. Skrine Stevenson: That is right, Sir.

4203. *Chairman*: Which have been compiled as representing the views of the Foreign Office on these particular points.

Mr. Skrine Stevenson: Yes.

4204. *Chairman*: Just to make plain what the two documents are: One is a memorandum prepared by the Foreign Office summarising the work of the League of Nations in regard to paragraph (5) of Article 8 of the Covenant.* That is merely historical, is it not?

Mr. Skrine Stevenson: Purely historical.

4205. *Chairman*: And merely giving us information as to what in fact has happened?

Mr. Skrine Stevenson: Yes.

4206. *Chairman*: There is nothing controversial about that?

Mr. Skrine Stevenson: No, Sir. It is merely a statement of fact.

4207. *Chairman*: That will be accessible to the Press or anybody who wants it and will become part of

our proceedings. I do not think we need go into that at the moment. The other is a memorandum of evidence submitted on behalf of the Foreign Office* and in an explanatory note it states that it is a Memorandum of Evidence dealing with item (2) of the terms of reference of the Royal Commission, which runs as follows:—

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimise the kind of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

Then you explain: "This memorandum of evidence after recapitulating briefly the work of the League of Nations in regard to Article 8 (5) of the Covenant explains the attitude of His Majesty's Government in the United Kingdom, notes certain complementary conclusions they have reached and details the manner in which they consider the problem can best be dealt with."

Then follows this document which you have prepared containing Part I and Part II. Do you wish to have that read?

* Appendix II, p. 569.

* Appendix III, p. 573.

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Mr. R. C. SKRINE STEVENSON.

[Continued.]

Mr. Skrine Stevenson: No, Sir. I think it would perhaps be a waste of the time of the Commission if that were read. I would take it as having been read.

4208. Chairman: Are there any particular points to which you wish to refer before we ask you questions?

Mr. Skrine Stevenson: No, Sir.

4209. Chairman: Under the head "Attitude of His Majesty's Government," paragraph 14, you refer to the three points in the Council Committee's questionnaire:—

(i) *The nature and extent of the "grave objections" of a national or international character, to the private manufacture of arms, etc.*

(iii) *Any possible obstacles to the conclusion of international agreements on the control of the private manufacture of arms.*

(v) *The provisions which should be inserted in any convention on the subject.*

Then you come to the replies of His Majesty's Government, which were drawn up by a sub-committee of the Committee of Imperial Defence under the Chairmanship of Lord Cecil. They replied as follows:

(i) *So far as this country is concerned the British Government are not aware of any "grave objections" of a national character.*

Did this committee take evidence or did they merely deal with the matter on the experience of the officials?

Mr. Skrine Stevenson: I imagine the latter, but I was not in England at the time and I do not know for certain.

4210. Chairman:

As regards objections of an international character the British Government do not know of any that are peculiar to private manufacture.

By that I understand they mean that this unfortunate system of giving bribes or presents prevails in respect of all kinds of trade in certain particular countries and there is nothing special with regard to private manufacture of arms.

Mr. Skrine Stevenson: I think private manufacture as distinct from state manufacture.

4211. Chairman: Private manufacture of arms.

Mr. Skrine Stevenson: Private manufacture of arms.

4212. Chairman:

In any case the Convention for the Supervision of the International Trade in Arms and Ammunition and in Implements of War, signed at Geneva on 17th June, 1925, when in force, will deal with the international aspects.

Has that ever been done?

Mr. Skrine Stevenson: Unfortunately that convention is not in force. It has been ratified by a number of countries but not by a sufficient number to bring it into force.

4213. Chairman: The next point I wanted to ask about comes under paragraph 18. The paragraph begins—

"The experience gained by His Majesty's Government during the international discussions of the last fourteen years has shown that the problems of arms manufacture and of arms trade cannot be dealt with separately."

There was a proposal, was there not, to deal with them separately?

Mr. Skrine Stevenson: Yes; and it went so far as the signature and ratification by a certain number of states of a convention for the control of the arms trade, but it was so disadvantageous from the point of view of non-producing countries and so much disliked by certain of the larger producing countries that it was never ratified and has remained a dead letter.

4214. Sir Philip Gibbs: Is that the 1925 Convention?

Mr. Skrine Stevenson: The 1925 Convention.

4215. Chairman: And that is referred to further down, where it says

"This state of affairs has convinced His Majesty's Government that equal treatment, so far as this is feasible, must be accorded by any convention to both producing and purchasing countries"

The latter are and must inevitably remain to a certain extent in a position of inferiority in regard to the former in that the amount of their purchases is naturally known in the markets where they are made. But it is the present aim of His Majesty's Government to minimise this natural disadvantage as far as possible and they are consequently in favour of a convention which will provide for control and publicity for both manufacture and trade."

Mr. Skrine Stevenson: Yes.

4216. Chairman: That is in order to put them more or less on the same footing?

Mr. Skrine Stevenson: Yes. The 1925 Convention provided for publicity for trade only and left the manufacture side in the dark.

4217. Chairman: The other point I wished to ask about is in paragraph 21. You say—

"Fourthly the history of international negotiations more particularly since the War, has clearly shown that success can only be achieved by slow degrees and by taking modest steps in the desired direction. Where only two or three powers are concerned progress may be relatively rapid but, as the number of powers involved increases, the difficulties also increase and the rate of progress becomes correspondingly slower. In the case of a convention for the control of arms manufacture and trade where the participation of all the principal manufacturing countries is essential the difficulty of securing agreement is immeasurably greater than in the case, for instance, of the Abyssinian Arms Treaty of 1930 which was concluded between only four powers, has been ratified and is now in force. The length of time the problem has been under discussion and the many checks and disappointments which have been encountered in the course of these years have convinced His Majesty's Government that to attempt too much is only to incur failure once again. In any undertaking and more especially in international negotiations it is the first step that counts, and, in the view of His Majesty's Government, it would represent an achievement of great value if all the principal manufacturing countries could agree to a convention which would entail the acceptance of the following principles:

(1) *Strict national control of arms manufacture and trade.*

(2) *Publicity for arms produced, exported or imported.*

(3) *Establishment of an international supervisory organ.*

(4) *Responsibility to that international organ for the accuracy of returns of manufacture and trade."*

That is what this government would wish to see?

Mr. Skrine Stevenson: Yes.

4218. Chairman: But that, of course, is by international agreement?

Mr. Skrine Stevenson: By international agreement.

4219. Chairman: I am not quite sure about this: Is this paragraph by way of answer? It is said that at one stage some particular arrangement would have gone through but for the objection of the English government. It was said that our government was obstructive. That was with regard to inspection on the spot?

Mr. Skrine Stevenson: Yes. It was suggested that to make sure that any convention, such as the one which we attempted to sketch out last spring, was carried out properly a system of supervision was desirable. There was a difference of opinion in

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the Arms Committee at Geneva in regard to the degree of supervision, the method of supervision. Certain delegations were in favour of control accompanied by local inspection of armament plant, production and so forth. Other delegations, of which the United Kingdom delegation was one, were of opinion that a convention which provided purely for national control of armaments should have a particular type of supervision, if there was to be any supervision. While they would have been ready to accept a system of supervision with local inspection, in the case of a convention which limited or reduced the amount of arms which could be manufactured or held by any particular country, they did not think that for a convention which laid down no limit for the amount of arms to be produced, exported or manufactured there should be the same sort of supervision. With regard to the proposal for a system of supervision with local inspection, although that would be very difficult both to lay down and to carry out, they would be prepared to accept it if thereby they could induce other nations to reduce or to limit their armaments. If there was to be no limitation of armaments they thought a simpler system of supervision was required. In this particular case of regulation for the control of manufacture and trade there were only going to be documentary returns to the central supervisory organ and for that they considered that an adequate form of supervision would be that these returns should be examined in Geneva and that if any explanation were required by the supervisory organ they should be in a position to call upon the government of the country concerned, who would be bound to give any explanation which the central supervisory organ desired, and if the central supervisory organ then, as the result of the examination, was not satisfied that the returns which the particular country made were accurate, or if they thought that there was something which they could not get to the bottom of, they would make a report, and this report would be circulated to all members of the Council of the League and to all members of the League of Nations, and they would then be in a position to take what steps they thought necessary. H.M. Government thought that a system of that kind would not only be more suitable for a convention such as this but would be more likely to be internationally acceptable. That, perhaps, is the most important consideration of all. They were and remain convinced that if any progress is to be made the start must be modest, that if—as is hoped—any sort of convention is to be obtained it must be a simple one to start with.

4220. *Chairman*: In substance, what it comes to is this, that inspection on the spot would only be acceptable in this country provided it were accompanied by arms limitation.

Mr. Skrine Stevenson: Yes.

4221. *Chairman*: Were representatives of other countries of the same view?

Mr. Skrine Stevenson: Yes. The Italian, Polish, Japanese and other delegations.

4222. *Chairman*: There was substantial agreement amongst a number of them?

Mr. Skrine Stevenson: Four or five delegations were of that view.

4223. *Sir Thomas Allen*: Were the Japanese representatives present on this occasion?

Mr. Skrine Stevenson: By an observer.

4224. *Dame Rachel Crowdy*: Did Great Britain actually lead in that idea, or were we one of many all thinking the same thing? Did Japan, Italy, Poland, etc. follow our lead, do you remember?

Mr. Skrine Stevenson: It is always the case in Geneva committees that the big powers have to speak first. The smaller powers generally do not open their mouths until the big powers have done so.

Dame Rachel Crowdy: I do not agree with that, after 11 years in Geneva! Very often you see the big powers pulling together in order not to be the first to move. I have seen that.

4225. *Sir Philip Gibbs*: Was France in favour of local inspection?

Mr. Skrine Stevenson: Yes.

4226. *Sir Philip Gibbs*: And the United States?

Mr. Skrine Stevenson: Yes, but a slightly different system. The French wanted an even more complicated system than the United States. The United States were generally in favour of local inspection which could be confined to the storage and shipping departments of arms-producing organisations, whereas the French were in favour of a more complicated system. They wanted to appoint resident inspectors in each of the countries who would have very wide powers of examination into every stage of arms manufacture.

4227. *Sir Philip Gibbs*: They were prepared to have foreign inspectors in their own country, I imagine?

Mr. Skrine Stevenson: That was the implication.

4228. *Sir Philip Gibbs*: Was that definitely stated on their part?

Mr. Skrine Stevenson: I do not remember, to be quite frank. But they would not have put forward their scheme otherwise.

4229. *Professor Gutteridge*: Did you discuss the machinery at length?

Mr. Skrine Stevenson: Oh yes; at great length.

4230. *Sir Thomas Allen*: Did it not come as a great shock to the other nations that Great Britain was taking up this attitude?

Mr. Skrine Stevenson: I should not say it was much of a shock because, although we had said that we were in favour of local inspection and supervision of local inspection in general in connection with the disarmament concerns, we had said very clearly and on many occasions that it would have to be as part of a convention which entailed limitation.

4231. *Sir Thomas Allen*: If not a shock, a great surprise, that we had sided with Italy in this particular matter as against siding with the United States of America and France.

Mr. Skrine Stevenson: I do not think the attitude of His Majesty's Government was anything but clear, completely clear, from the beginning.

4232. *Dame Rachel Crowdy*: Perhaps rather stupidly, I am confused in my own mind as to exactly why we did object to inspection even without limitation. Will you make that clear to me?

Mr. Skrine Stevenson: I think it was because, as I said before, this convention was one which only provided for documentary returns and, in a convention such as was contemplated by His Majesty's Government, these documentary returns would cover value of manufacture, value of import or export.

4233. *Dame Rachel Crowdy*: Not detail.

Mr. Skrine Stevenson: Not number, not quantity. Where there was no question of inspecting actual quantities of arms, it seemed an unnecessary complication to have a system of local inspection.

4234. *Dame Rachel Crowdy*: Therefore, you think that the British delegation was against it because they felt it would be useless for the world and also for Great Britain.

Mr. Skrine Stevenson: I think the main reason was that we wanted to get arms limitation and one way of getting arms limitation was to say: "We will agree to complete local inspection and supervision if you will only limit your armaments," and we did not want to give that away for a mere convention controlling trade and manufacture, valuable as it would be.

4235. *Dame Rachel Crowdy*: What was the British attitude towards publicity in regard to figures of export, import and manufacture? Do you remember?

Mr. Skrine Stevenson: Yes. It is set forth in paragraph 25 of my memorandum. The original

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United States proposals were for giving quantities. After a considerable amount of time had been spent here examining the difficulties and the *pros* and *cons* of the whole problem, it was decided that a system of publicity such as the United States suggested would be inappropriate for this convention which did not provide for limitation; first of all for the reason that it was not a matter of limitation and, therefore, any country was at liberty to manufacture any amount of arms they liked; secondly, that, in that case, what was required was that there should be publicity for the general trend of arms manufacture rather than particular information regarding the types of arms manufactured. Thirdly, we were impressed with the desirability of securing international agreement and we thought—and rightly, as it turned out—that a system which went into the detail which the United States project did, would only share the fate of previous well meaning projects, and although it might be accepted on the spot, would only be accepted *ad referendum* and would finally become a dead letter like the 1925 Convention. For those reasons, again from this particular aspect, we produced a simpler system which would give the general trend of arms manufacture, which would give advance notice of the intention of any country to increase or decrease its armaments. We thought that would adequately serve the purpose of this convention.

4236. *Dame Rachel Crowdy*: Why do you feel that your simpler proposals were not acceptable to the governments at Geneva? What was the catch they saw in them—if I may use that as an easy phrase?

Mr. Skrine Stevenson: They thought it would not give sufficiently detailed information. Although they did not deny that it would give the general trend of arms manufacture and production, they did not think it would give sufficient detail and they favoured more detail.

4237. *Dame Rachel Crowdy*: I certainly found the impression in Geneva was that the British, standing, as you say, for international co-operation, had rather scuppered international co-operation. I am quoting foreign comments made to me. There was certainly a very strong feeling that that international convention might have gone through and that there might have been very much better going if we had leaned towards the American draft instead of away from it.

Mr. Skrine Stevenson: That can only be a matter of impression. It certainly was not my view.

4238. *Dame Rachel Crowdy*: But, in fact, we got nothing, neither the American draft nor the simplified plan.

Mr. Skrine Stevenson: No. The committee has not met again.

4239. *Dame Rachel Crowdy*: There is, I understand, great feeling, both in Geneva and here, that that American draft convention,—any draft convention,—has been side-tracked and will not come back for some time. Is it indiscreet to ask you what you think, whether you think there is any possibility of its coming up again?

Mr. Skrine Stevenson: I think if any advance is made in the direction of arms limitation or control, the first step will be in the direction of control of manufacture and trade.

4240. *Dame Rachel Crowdy*: Before limitation.

Mr. Skrine Stevenson: I think so. There is more likelihood of international agreement on this subject than on arms limitation.

4241. *Professor Gutteridge*: When you say control of manufacture and trade, do you mean with inspection on the spot, or not?

Mr. Skrine Stevenson: No. I mean there is more likelihood in general of getting a convention for control of manufacture.

4242. *Professor Gutteridge*: Do you mean control with inspection on the spot?

Mr. Skrine Stevenson: No. I think not.

4243. *Professor Gutteridge*: Without inspection?

Mr. Skrine Stevenson: A simplified form of supervision. I think the important thing is the principle of responsibility to a central supervisory organ. If only that could be internationally accepted, that would be an enormous step in advance.

4244. *Dame Rachel Crowdy*: Something rather on the lines of the Opium Control Board?

Mr. Skrine Stevenson: Yes.

4245. *Dame Rachel Crowdy*: I was rather interested in your interpretation of the inset paragraph under paragraph 15, Part II. You remember the sentence that the Chairman read:

As regards objections of an international character, the British Government do not know of any that are peculiar to private manufacture. You interpret that as meaning the British Government see no particular possibility of evils not existing under a monopoly which are supposed to exist under private manufacture. Is that your interpretation?

Mr. Skrine Stevenson: Yes. The interpretation was that any evils that may exist are equally likely to exist under state manufacture.

4246. *Dame Rachel Crowdy*: Do you think that applies to such things as touting for orders? Do you believe that, under a government monopoly, government "A" would deliberately send its agents to government "B" to tout for orders, particularly if a delicate international situation were on the tapis and its representatives at Geneva were fighting internationally for a settlement?

Mr. Skrine Stevenson: It would probably not be necessary to do much touting. I think a country which depends on state manufacture is in a very much stronger position to put pressure on other countries than any armament firm or group of firms, and that if there is a question of pressure, it would be very much more effective when done by government than when done by an armament ring.

4247. *Dame Rachel Crowdy*: It would be very much less likely to happen.

Mr. Skrine Stevenson: It would depend upon what political ends the government thought would be served.

4248. *Dame Rachel Crowdy*: I am thinking of our own country, not of foreign countries.

Mr. Skrine Stevenson: That would not enter into it. We have not state manufacture to that extent that we would want to do it.

4249. *Dame Rachel Crowdy*: I mean, if we had state manufacture instead of private manufacture, do you think the same evils would exist in state manufacture as in private manufacture—for example, touting, bribery, soliciting of orders.

Chairman: On behalf of our government, do you mean?

Dame Rachel Crowdy: Yes; on behalf of our government.

Chairman: I do not think we have to conceive that.

Dame Rachel Crowdy: No. I cannot conceive it for a moment, but I thought that was the interpretation of Mr. Stevenson's paragraph.

Mr. Skrine Stevenson: This is a quotation from a report by a sub-committee of the Committee of Imperial Defence and I just gave you my own interpretation of it. I had not heard another explanation of it.

Dame Rachel Crowdy: Then I will leave that alone. That is all I want to ask.

4250. *Sir Kenneth Lee*: I am very ignorant in these matters. Can you explain to me just what "documentary return" means?

Mr. Skrine Stevenson: The convention such as the United Kingdom Government suggested provided for documentary information to be sent each quarter to the central supervisory organ which we hoped would be the Permanent Disarmament Commission;

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it would be a matter of just filling up internationally accepted forms giving certain information which would be returned each quarter by the government of every country signatory to the convention.

4251. *Sir Kenneth Lee*: Is there any difference between a return and a documentary return?

Mr. Skrine Stevenson: There would possibly be verbal returns, but I agree it is unlikely. It is perhaps a lax phrase. What I meant to imply was that it was all a matter of paper work and not of actual inspection, of visual verification.

4252. *Dame Rachel Crowdy*: I thought inspection was what they wanted and we did not want.

Mr. Skrine Stevenson: Not His Majesty's Government. The documentary return is another matter.

4253. *Mr. Spender*: With regard to this question of state pressure and pressure being applied by private firms, is not the distinction really this, that the private firms are touting and so forth for private profit, that that would be an immaterial consideration to the state, but that the state would, and does in many cases, apply considerable pressure to persuade, or even compel, certain nations or states with which it has relations or an alliance to buy armaments from it.

Mr. Skrine Stevenson: It is not unknown.

4254. *Mr. Spender*: And you have the condition made that a loan shall be floated for the benefit of a certain country and that loan shall be expended in the purchase of armaments produced and manufactured in the country by whom the loan is made. That is so, is it not?

Mr. Skrine Stevenson: Yes.

4255. *Mr. Spender*: So you would get what is really meant, if not what is said—sometimes expressions are used which nobody can really understand—that is, another form of pressure?

Mr. Skrine Stevenson: Yes, a different kind of pressure; probably more effective.

4256. *Mr. Spender*: Could you tell us a little more about what method of publicity is favoured in these conventions? Would you publish these documents as annual reports?

Mr. Skrine Stevenson: Yes. The Permanent Disarmament Commission, if the convention had gone through, would have issued, if I remember rightly, quarterly returns showing the movement of arms and their production throughout the world. They would also have published a forecast of what was going to happen. That was part of the system which we suggested, that countries should give information in advance.

4257. *Dame Rachel Crowdy*: That is, exactly the same as for opium—export, import and manufacture?

Mr. Skrine Stevenson: Yes, except that as far as opium is concerned it is the consumption; it is what is required by each country.

4258. *Dame Rachel Crowdy*: Yes, the requirement for the following year. It is stated one year ahead.

Mr. Skrine Stevenson: This proposal of ours was to the effect that governments should state at the beginning of the financial year what they were going to spend on arms under the different headings and categories of arms which were covered by the convention. It would give more detail than we now give in the budgetary return.

4259. *Dame Rachel Crowdy*: Would the central board then have a right to comment on what it considered over-requirement for the coming year?

Mr. Skrine Stevenson: The point was made that there was no such thing as over-requirement. There was no limitation whatever. But, of course, it was open to a neighbour of any particular country to say "You seem to be going to make a lot of guns or built a lot of battleships"—or whatever it might be—"we will have to do the same. Do you not think you might cut that figure down?" That would give an opportunity for bilateral or multi-lateral conversations with a view to lessening the amount required.

4260. *Dame Rachel Crowdy*: Is there no question of the central board reporting to the Council anything that seemed to the central board to be extreme in the way of demands?

Mr. Skrine Stevenson: No.

4261. *Mr. Spender*: You rather suggested that the various powers would be bargaining with each other with the ultimate object of advancing their case with regard to inspection or objection to inspection. Has there been any suggestion that they should all agree to go forward and allow the supervisory authority to have the best reports that it can get and to issue three-monthly or annual reports on the trend of armaments? Would not that in itself be an excellent thing?

Mr. Skrine Stevenson: It would.

4262. *Mr. Spender*: Even apart from limitation would it not be well to let in as much light as possible on the subject? Would not that be an initial step towards limitation, to let people have full knowledge of the facts?

Mr. Skrine Stevenson: I do not think you would get international agreement on countries supplying more complicated returns.

4263. *Mr. Spender*: I suggest the very simplest form of return, without any suggestion of compulsion or imposition. Would it not be a step forward?

Mr. Skrine Stevenson: Yes. But if it were a question of giving the quantities of arms produced then there might be some advantage in having local inspection, but I do not think the local inspectors would be able to add very much to the sum of knowledge of the central supervisory organ.

4264. *Mr. Spender*: They would go to the central supervisory authority. They would not be able to express an opinion or make any definite recommendations.

Mr. Skrine Stevenson: They would not, unless the convention were one for the reduction or limitation of armaments.

4265. *Mr. Spender*: You mean that without limitation it is not possible to make merely a simple report on the state of the arms trade. Is not that possible?

Mr. Skrine Stevenson: Yes, it would give an idea of the amount produced.

4266. *Mr. Spender*: Would it not be very important to get that information if you were going to make a step towards limitation?

Mr. Skrine Stevenson: But if there were no limitation, would there be any advantage in hiding your returns?

4267. *Mr. Spender*: No advantage, and therefore you would get approximately correct returns. You would get a good deal of light thrown upon the subject.

Mr. Skrine Stevenson: You get it now.

4268. *Mr. Spender*: Except that there is no authority now authorised to give it to you.

Mr. Skrine Stevenson: No authority at all, but if a convention such as this were concluded you would have a permanent disarmament commission, which would have the right to call on you to explain the returns.

4269. *Mr. Spender*: I am only suggesting that if there are all these obstacles and difficulties in regard to the form of inspection and supervision to be exercised through the disarmament authority which is to be set up, would it not be wise for the time being to get the authority set up on the ground that you have suggested—for the collection of returns? The returns might be quite simple.

Mr. Skrine Stevenson: Yes, His Majesty's Government would be delighted to see a central organ set up with this as one of its tasks.

4270. *Mr. Spender*: It appears to me—perhaps I am wrong in drawing the inference from what you have said—that these various objections and bargainings have become an obstacle to the setting up of this disarmament commission.

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Mr. Skrine Stevenson: I do not think that is necessarily so. The fact that a permanent disarmament commission has not been set up is just a result of the general halt that has come in all disarmament matters.

4271. Mr. Spender: It has not been only on account of those objections?

Mr. Skrine Stevenson: No. It lies in the difficulties encountered in the whole gamut of problems covered by the Disarmament Conference.

4272. Dame Rachel Crowdy: Would His Majesty's Government accept any form of agreement which did not include limitation?

Mr. Skrine Stevenson: Yes, they would accept an agreement on the lines put forward in my memorandum.

4273. Chairman: Do I understand that in your view, apart from some agreement as to limitation of armaments, the annual or quarterly publication of information as to the extent of armaments and the intentions of governments to provide themselves with armaments up to a certain amount would very likely lead to an increase of armaments, because given that information one nation might say "We find that so-and-so are going to spend so much on armaments next year and we are not. We shall have to increase our armaments"?

Mr. Skrine Stevenson: They might also use that as an argument with their neighbour and say "If you are going to spend that amount, we also shall have to go further". It was hoped, particularly by the French, that there would be a considerable margin for bargaining in that way. They wanted particularly to have advance information about the amount of arms produced by their neighbours, in order that they might either take their own measures or persuade them to give up such ambitious programmes.

4274. Sir Philip Gibbs: In your historical survey it seems to me that there are certain inconsistencies in the views held by the British Government from time to time. In the first place, the British Government is a signatory to the League of Nations Covenant, in which it says quite clearly, in Article 8, that there are grave objections against the private manufacture and trade in arms. But in paragraph 15 of your statement, His Majesty's Government's reply, drawn up by a sub-committee of the Committee of Imperial Defence, is:

So far as this country is concerned the British Government are not aware of any "grave objections" of a national character and they go on to say, with regard to the international character, that they also do not see any grave objections that are peculiar to private manufacture. That seems to me a very extraordinary inconsistency.

Mr. Skrine Stevenson: You mean it is inconsistent with Article 8 of the Covenant?

4275. Sir Philip Gibbs: Yes.

Mr. Skrine Stevenson: I think the difficulty is that the objections mentioned in Article 8 of the Covenant have not been defined. You do not maintain that it is inconsistent to say that there are no grave objections of a national character? That is not inconsistent.

4276. Sir Philip Gibbs: Of an international character. I think there is also a slight inconsistency with regard to the national character, because I think that Article 8 of the Covenant implied that there were general grave objections in every nation, not excluding Great Britain.

Mr. Skrine Stevenson: It is not actually inconsistent, because it merely says "We are not aware of any grave objections of a national character". H.M. Government do not deny that such objections might exist—and having signed the Covenant they cannot deny that—they merely say they are not aware of such objections as far as this country is concerned. They do not deny

that there are objections of an international character. They say that these objections are shared by state manufacture as well as private. It is not inconsistent.

4277. Sir Philip Gibbs: No. I think there is an apparent inconsistency which needs explaining. I think it wants a little interpretation. Could you give me your own definition of one phrase under the head: "Conclusions reached by His Majesty's Government as a result of their study of the subject". The phrase that I refer to is near the end of paragraph 21 "Strict national control of arms manufacture and trade". What is in your mind? Can you define what you mean by "strict national control"?

Mr. Skrine Stevenson: I think the definition is contained in the articles which are appended to this memorandum. For instance, you have in Article 1

Each High Contracting Party assumes . . . full responsibility.

There the responsibility is laid down. In Article 2 we ensure that the state has the necessary legal and constitutional powers to control their manufacture and trade. Article 3 deals only with supervision. In Article 5 you have a description of what the actual control would be. Manufacturers must have licences before they can manufacture. These licences are valid for a period only and they are revocable at any time. They can only be issued, revoked or renewed by the government. Then in Article 7 you have a description of what the licence to manufacture should contain and the designation of the arms and munitions of war which they are allowed to manufacture. In Article 8 there is a description of the licences which would have to be issued before any export or import of arms is allowed. These licences contain descriptions of articles and the name and address of the exporters, the name and address of the important consignee, and references to the import permits. Article 9 has to do with publicity—a description of the returns which have to be made. The control therefore consists of licensing for manufacture and the giving of written permits for import and export. No manufacture shall take place without the licence of the government. No arms may be moved either into or out of a country without the knowledge and permission of the government.

4278. Sir Philip Gibbs: Of course, some of these things are already laid down at the moment, are they not?

Mr. Skrine Stevenson: In this country, yes.

4279. Sir Philip Gibbs: I should like to ask you whether you yourself feel that it would be a fair reading of these various committees and sub-committees, and so forth, that from the very beginning of the League of Nations there was an admission that the grave objections mentioned in Article 8 of the Covenant did actually exist. Is that a fair interpretation of the activities of these committees?

Mr. Skrine Stevenson: Certainly there were many members of these committees who firmly believed that those grave objections existed. Others were more sceptical.

4280. Sir Philip Gibbs: Would it be fair to say that the Temporary Mixed Commission of 1921 and the Convention of 1925 and the various sub-committees sitting adopted as a basis the fact that the private manufacture of arms and the foreign export of arms was a dangerous business which ought to be controlled more strictly?

Mr. Skrine Stevenson: They had as a basis, obviously, Article 8 of the Covenant. The activities of the League in regard to the control of arms are based on that article and in so far as that article does contain this statement with regard to the grave objections that is correct.

4281. Sir Philip Gibbs: And really the whole purpose of these various committees and commissions is to obtain a stricter control?

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Mr. Skrine Stevenson: That is right.

4282. Sir Philip Gibbs: Of private manufacture and of the export of arms to other countries?

Mr. Skrine Stevenson: That is right. What His Majesty's Government consider is that the trade should pass through the responsible hands of the government. That is to say, that there should not be trade without strict control by government.

Sir Thomas Allen: My questions have been already put and the answers have been forthcoming.

4283. Professor Gutteridge: Can you tell me what other countries, European or otherwise, have a system of licensing similar to ours?

Mr. Skrine Stevenson: France, Belgium and a number of other countries. As a matter of fact at the moment a great number of countries have control over their export of arms.

4284. Professor Gutteridge: Yes, but I am not referring to temporary control.

Mr. Skrine Stevenson: I know France and Belgium have the licensing system and other European countries as well.

4285. Professor Gutteridge: The Swedes have it?

Mr. Skrine Stevenson: The Swedes have it.

4286. Professor Gutteridge: The Danes and Norwegians?

Mr. Skrine Stevenson: I think most of the Scandinavian countries have it, but I am not certain.

4287. Professor Gutteridge: Have you compared the system at all? Are they mostly on the same lines as our licensing system?

Mr. Skrine Stevenson: Mostly.

4288. Mr. Spender: Is there any country of considerable importance which has not a licensing system?

Mr. Skrine Stevenson: I do not think Japan has a licensing system. I am very sorry, I cannot answer definitely.

4289. Sir Philip Gibbs: Has the United States any such system?

Mr. Skrine Stevenson: They have recently enacted one.

4290. Sir Philip Gibbs: Is it actually in force?

Mr. Skrine Stevenson: Whether it is legally in force, I do not know. I should think so.

4291. Professor Gutteridge: Were the Soviet Republics parties to this committee or not?

Mr. Skrine Stevenson: Yes. They were represented on the latest arms committee which sat in Geneva.

4292. Mr. Spender: Have they a system of export licence?

Mr. Skrine Stevenson: All their export is state controlled.

4293. Professor Gutteridge: That brings me to a matter that is rather troubling me. I suppose it is contemplated that every civilised country in the world should come into this scheme.

Mr. Skrine Stevenson: Certainly. It would be of no use unless all the producing countries came in.

4294. Professor Gutteridge: Would it be of any use even if all producing countries came in; because a country might produce for internal use only.

Mr. Skrine Stevenson: They would have to come in.

4295. Professor Gutteridge: I am thinking of certain countries which are not members of the League. If you had any scheme which did not include them, would there not be difficulty?

Mr. Skrine Stevenson: It would not be a possibility. I think every producing country would demand that all other producing countries should be members.

4296. Dame Rachel Crowdy: They were all represented in an observing capacity at the Conference.

Mr. Skrine Stevenson: Except the Germans.

4297. Dame Rachel Crowdy: Japan and the United States were there.

Mr. Skrine Stevenson: The United States is an active member.

4298. Professor Gutteridge: Germany may become a very great export country as far as we know. You were asked a question just now by Sir Kenneth Lee with regard to the nature of the information. I have here a Geneva blue book which gives the text of a draft convention prepared by the Technical Committee on National Defence Expenditure. You are familiar with that?

Mr. Skrine Stevenson: Yes.

4299. Professor Gutteridge: And at the end there is an Appendix called Model Reconciliation Tables?

Mr. Skrine Stevenson: Yes.

4300. Professor Gutteridge: Are those the documents of which you are speaking?

Mr. Skrine Stevenson: No. That is a slightly different thing. One aspect of the Arms Committee was the National Defence Expenditure Commission. They produced a draft convention which dealt with budgetary publicity only. In connection with the convention which we suggested, as a result of the work in Geneva, a year ago, the information which would have been given would have been rather more than that entailed merely by the budgetary publicity.

4301. Professor Gutteridge: Is that something that runs parallel to it?

Mr. Skrine Stevenson: Yes. It is something which runs parallel to it. It would have to be concluded at the same time. One would be incomplete without the other.

4302. Professor Gutteridge: It does not necessarily exclude this scheme, does it?

Mr. Skrine Stevenson: No. That could be enacted without the arms manufacture scheme.

4303. Professor Gutteridge: They are independent of one another?

Mr. Skrine Stevenson: Yes. They are independent of one another, but the arms convention would be incomplete unless you had that as well.

4304. Professor Gutteridge: It seems to me that, on occasion, inspection of plant might be highly inconvenient?

Mr. Skrine Stevenson: Yes; it might.

4305. Professor Gutteridge: In the present state of European relations, it would be highly inconvenient, would it not?

Mr. Skrine Stevenson: Conceivably very inconvenient, but also entirely ineffective.

4306. Professor Gutteridge: You mean it would be *brutum fulmen*; you simply would not find anything out. In other words, the thing might easily develop into a farce?

Mr. Skrine Stevenson: That is conceivable.

4307. Professor Gutteridge: It cannot work unless there is goodwill?

Mr. Skrine Stevenson: It cannot work unless there is goodwill.

4308. Professor Gutteridge: That applies to a good deal of this disarmament business?

Mr. Skrine Stevenson: The whole of it.

4309. Professor Gutteridge: If you do not get the goodwill of the people it cannot work?

Dame Rachel Crowdy: Is it not good faith more than goodwill that you require?

Mr. Skrine Stevenson: Yes. Unless you have good faith, it does not matter how much goodwill you have.

Professor Gutteridge: You must have good faith, but I should put goodwill before good faith. If you get goodwill, you get good faith.

Chairman: There are two points of view.

Professor Gutteridge: I am a person who believes that if anything comes out of this, it will be done by the brotherhood of man, the friendship of man, you cannot do it by machinery.

4310. Dame Rachel Crowdy: In connection with the possible licensing system, you said that His Majesty's Government was particularly anxious that the movements of all arms should be in the hands of responsible people?

Mr. Skrine Stevenson: Yes.

7 May, 1936.]

Mr. R. C. SKRINE STEVENSON.

[Continued.]

4311. *Dame Rachel Crowdy*: You spoke of a licensing system for the export of arms and then, as far as I remember, you said the consignee, importer and exporter's address must be known. Before His Majesty's Government or any government gave an export licence, would they ask to see an import licence issued by the government of the importing country covering the respectability of the importer?

Mr. Skrine Stevenson: Yes. No import would

be allowed without an import licence, and so no exporting country would take the risk of letting any consignment go until they knew that it would be authorised.

4312. *Dame Rachel Crowdy*: That covers export and import?

Mr. Skrine Stevenson: Yes.

Chairman: Thank you, Mr. Stevenson. We are much obliged to you.

(Adjourned.)

APPENDIX I

THE NEWSPAPER PROPRIETORS ASSOCIATION,
LIMITED.6, BOUVERIE STREET,
LONDON, E.C.4.

5th February, 1936.

To the Secretary of The Royal Commission on the
Private Manufacture of and Trading in Arms.

DEAR SIR,

This memorandum is submitted on behalf of the N.P.A., the membership of which includes the following morning, evening and Sunday newspapers:

The Times.
Daily Telegraph.
Morning Post.
Daily Mail.
News Chronicle.
Daily Express.
Daily Herald.
Daily Mirror.
Daily Sketch.
Financial News.
Financial Times.
Morning Advertiser.
Sporting Life & Sportsman.
Evening Standard.
The Star.
Evening News.
News of the World.
The Observer.
Sunday Times.
Sunday Dispatch.
Sunday Express.
Reynolds's.
The People.
Sunday Graphic & Sunday News.
Sunday Pictorial.
Sunday Referee.
Sunday Sportsman.

While a number of people holding shares in various newspaper companies may also be interested in firms making armaments, we can find no evidence whatever that any of the Directors or Proprietors of the newspapers mentioned above are identified with firms manufacturing armaments in this country in such manner as would justify the slightest suggestion that the newspapers under their control are used for the purpose of advocating the manufacture of armaments in order that pecuniary gain might accrue to them by so doing.

Any innuendo that the National newspapers which comprise our membership are influenced in editorial policy on such vital questions as armament or disarmament by the fact that advertising space is taken by businesses or organisations concerned in manufacturing or opposing the manufacture of armaments,

can be answered by any person of average intelligence who cares to examine the columns of these newspapers.

Evidence concerning advocacy by the Daily Mail and Daily Mirror of an increase in the Air Force was discounted by Mr. Arnold Forster himself when he recognised the good intentions behind this campaign.

It is, of course, unnecessary to remind the Committee that the late Lord Northcliffe's keenness on this question has been maintained by his brother—Lord Rothermere.

Several references have been made to the fact that *The Times* has had foreign correspondents interested in armament firms. Twice during recent months this paper has published replies to these statements to the following effect:—

"Mr. George Boncescu was appointed as local occasional Correspondent in Bucharest in January, 1920. He was selected by our Staff Correspondent in the Balkans on the ground that, having served as Commercial Attaché in the Rumanian Legation in London for several years, he was *au fait* with British standards and requirements. Mr. Boncescu remained Correspondent until March 1927, when he accepted the appointment of Commercial Counsellor in the Rumanian Legation in Washington.

Mr. Roland Bryce was appointed as local occasional Correspondent in Belgrade in August, 1923. His correspondence discontinued in April, 1926, when he left Yugoslavia.

It should be pointed out that these appointments were local and secondary. *The Times* has always had a Staff Correspondent or Staff Correspondents in charge of the Danubian and Balkan countries. They are assisted by Correspondents who are locally appointed to transmit news, but who could exercise no influence upon the policy of *The Times*. Their occasional work for *The Times* in the transmission of news did not involve any connexion between *The Times* and commercial undertakings in general or armaments firms in particular.

It will be seen that the two men mentioned ceased to be connected with *The Times* nine years and ten years ago respectively.

The third person mentioned, Mr. Mavrocordate, merely deputised on a few occasions for Mr. Boncescu."

If the Committee desire to put any oral questions on the above statement, or on any evidence given by witnesses, the Chairman (The Hon. Esmond Harmsworth), or the Vice-Chairman (Colonel the Hon. E. F. Lawson) and myself would attend for that purpose.

Yours faithfully,

T. W. McARA.

APPENDIX II

MEMORANDUM PREPARED BY THE FOREIGN OFFICE SUMMARISING
THE WORK OF THE LEAGUE OF NATIONS IN REGARD TO
PARAGRAPH (5) OF ARTICLE 8 OF THE COVENANT

Article 8 of the Covenant deals with the reduction of armaments, and paragraph (5) of this article is as follows:—

"The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety."

The work of the League in regard to this paragraph may, for convenience, be divided into three phases. From 1920-1925 it was considered by the Temporary Mixed Commission; from 1925-1929 by the Council through a Special Commission; and from 1932 to the present time by a Committee of the Disarmament Conference.

A. The Temporary Mixed Commission.

2. The Temporary Mixed Commission was appointed by the First Assembly (1920) to prepare reports and proposals for the reduction of armaments as provided for by Article 8 of the Covenant. It was composed of persons chosen for their individual competence, not of government representatives. Paragraph (5) of Article 8 was considered by a sub-committee of the Commission.

3. The sub-committee produced an interim report in 1921.(a) This report was an attempt to clear the ground and was in two parts. The first part dealt with private manufacture. The "grave objections" to the manufacture by private enterprise of war material were not defined in the Covenant: they could not be deduced from the deliberations of the committee which drafted the Covenant. The committee therefore drew up a list of the objections which had been formulated: and without making any positive recommendations put forward observations on the problems and difficulties to be solved (b) if private manufacture were prohibited (b) if private manufacture were to be subject to control. Finally the committee considered a proposal that an international conference should be summoned to deal with private manufacture and arms traffic. The committee recommended the Assembly to decide in principle in favour of such a conference.

The second part of the report dealt with the traffic in arms, and was principally concerned with the position as regards the ratification of the Convention of St. Germain, signed on September 10, 1919.(b) The committee recognised that the key to the general acceptance of this convention lay in the attitude of the United States and recommended that the principal aim should be to bring the Convention into operation at the earliest possible moment.

4. The Second Assembly (1921) resolved that an international conference on the private manufacture of and trade in arms should meet as soon as possible, and that the Temporary Mixed Commission should prepare the programme of the Conference, and a draft convention for its consideration. The Council, however, decided in October that it was premature to fix a date for a conference in view of the fact that the manufacture of arms was carried on in countries not yet members of the League. The Commission reported in 1922.(c) As regards private manufacture the report gave an account of the preparatory studies which it was conducting (including the study of the project of a draft agreement put forward by Sir Hubert Llewellyn Smith) and

expressed the opinion that "the subject of private manufacture could not be divorced from the subject of traffic in arms". On this latter subject the Commission reported that the refusal (which had been formally made known) of the United States to ratify the Convention of St. Germain constituted a new situation, and that the question of a convention on arms traffic must be reconsidered in its entirety. The Commission also approved the principle of applying a system of national licences to private manufacture of arms.

5. The Third Assembly (1922) passed a resolution in favour of an international conference on private manufacture, but added that the United States Government should be asked to formulate its objections to the Convention of St. Germain and to put forward proposals to meet them; and that the Temporary Mixed Commission should prepare a scheme for the control of traffic in arms for consideration by a conference, in which non-members of the League should be invited to participate. The Council in January 1923 however decided that the question of private manufacture and trade were so closely connected that it was inadvisable to summon a conference solely to deal with the former. The Temporary Mixed Commission in February 1923 decided that neither the preparation of a new scheme for the control of traffic nor the execution of a scheme for the control of private manufacture could be successfully undertaken until the co-operation of the United States Government had been obtained. On the Commission's recommendation the Council accordingly addressed in April 1923 a communication to the United States Government, the reply to which had not arrived when the Commission made its third report in August 1923.(d) The reply was sent in September and was considered at the Assembly; it reiterated the objections of the United States to ratification of the Convention of St. Germain but it "proposed no method and made no suggestion likely to permit of an international solution of the problem in co-operation with the United States". Accordingly the Third Assembly resolved that, as regards traffic, the Temporary Mixed Commission should prepare a new convention to replace that of St. Germain, and that United States representatives should be invited to collaborate in the work. As regards private manufacture, the Temporary Mixed Commission was invited to refer the project of agreement (referred to in the preceding paragraph) to the Economic Committee of the League and to endeavour, in co-operation with the Committee, to draw up a draft convention. The Council on receiving draft conventions both on traffic and private manufacture was to consider the question of summoning an international conference.

6. The Temporary Mixed Commission reported its efforts to execute this resolution to the Fifth Assembly (1924).(e) As regards traffic, it obtained the unofficial collaboration of the United States and was able to draw up a draft convention. In undertaking this work the Commission was guided primarily by Article 23 of the Covenant, which runs as follows:—

"Subject to and in accordance with the provisions of international conventions existing or hereafter to be agreed upon, the Members of the League:

(d) will entrust the League with the general supervision of the trade in arms and ammunition with the countries in which the control of this traffic is necessary in the common interest."

(a) League of Nations document A.81. 1921.

(b) Cmd. 414.

(c) League of Nations document A.31. 1922.

(d) *ibid.* A.35. (Part II) 1923. IX.

(e) *ibid.* A.16. 1924. IX.

In carrying out the intention of this paragraph the Commission had, however, as its secondary object the implementing of Article 8 (5) of the Covenant and, by controlling the general international trade, to prevent as far as possible the evil effects which the Covenant attributed to private manufacture. The Commission took as the basis of its work the Convention of St. Germain, and modified it to meet the objections of the United States representatives. As regards private manufacture, the sub-committee of the Temporary Mixed Commission were unable to reach a unanimous decision. The majority report, which was subsequently endorsed by the Commission, took the view that as it had been asked to examine a draft convention for the control of private manufacture it should leave out of consideration the question of the prohibition of private manufacture. Secondly, the majority maintained that the control of private manufacture should be "exclusively national" though based on principles common to all countries. They drew a distinction between trade in arms which extended beyond national frontiers and private manufacture which was "a purely national matter, the regulation and inspection of which should be left to the national authorities." The minority of the sub-committee (including the French representative) were in favour of the absolute prohibition of private manufacture, and, though they were prepared in certain circumstances to accept an intermediate solution, they insisted on international control. The majority of the Temporary Mixed Commission endorsed the principle of national control; and drew up a document containing the principles recommended as a basis for an international convention on the national control of private manufacture of arms. This document was examined by the Economic Committee of the League, which made two principal assumptions: that a convention on manufacture should be complementary to a convention on traffic; and that the convention on manufacture would only come into force after ratification by all the principal manufacturing countries. It also offered detailed criticism. It should be noted that the United States representatives did not take part in the discussion of the control of private manufacture.

7. The Fifth Assembly was therefore able to summon a conference to consider the draft convention on the control of traffic, but as regards private manufacture was only able to instruct the Temporary Mixed Commission to investigate the question anew, "with an entirely open mind," and to prepare a draft convention to serve as the basis for the discussions of an international conference. The Assembly further suggested that United States representatives should be invited to collaborate in this work. The Temporary Mixed Commission was, however, dissolved and replaced in 1925 by the Co-ordination Commission, which was largely composed of government representatives.

8. To sum up, in the years 1921-1924 the League considered the questions of private manufacture and of trade in arms together, and progress on both questions was blocked by the attitude of the United States to the Convention of St. Germain. In 1924 the questions were separated, the co-operation of the United States made possible the summoning of a conference on the control of trade, while, as regards private manufacture, fundamental divergencies of view rendered any material advance impossible of achievement.

9. The Fifth Assembly also considered the results of a statistical inquiry which had been undertaken by the Secretariat on the traffic in arms and war material. A Statistical Year-Book of the Trade in Arms and Ammunition has since been published annually by the League.

10. The International Conference on the Trade in Arms met at Geneva in May, 1925, and the International Convention for the Supervision of the International Trade in Arms and Ammunition was signed at Geneva on 17th June, 1925.^(f) The Conference

adopted in its final act a declaration that "the convention must be considered as an important step towards a general system of international agreements regarding arms and ammunition and implements of war, and that it is desirable that the international aspect of the manufacture of such arms, ammunition and implements of war should receive early consideration by the different Governments."

11. The Sixth Assembly (1925) adopted this declaration: it was recognised that control of private manufacture was indispensable to the establishment of equality between producing and non-producing states; for the latter would be placed in a position of inferiority by the licensing and publicity provisions of the 1925 Convention. The Council was accordingly invited to take steps to prepare a draft convention as speedily as possible, and to invite the United States Government to co-operate in the preparatory work.

B. The Special Commission.

12. The short-lived Co-ordination Commission referred to in paragraph 7 above (the dominating part in which was played by the so-called Council in Committee, or Committee of the Council) met in February, 1925, and came to the conclusion that in view of the close connection existing between the control of private manufacture and that of trade, the drafting of a convention on private manufacture should be adjourned pending the outcome of the Traffic in Arms Conference. Meanwhile, a committee of inquiry should be set up to obtain the views of governments on the nature and importance of the grave objections mentioned in Article 8 of the Covenant and information as to the measures already existing in each country for the control of manufacture. The Council approved these recommendations and authorised the issue of a questionnaire to governments. The Committee of Inquiry drew up a preliminary draft convention, and the results of its work were before the Seventh Assembly.^(g) In the meantime, however, the Preparatory Commission of the Disarmament Conference had been constituted: and in view of the connection which existed between the question of private manufacture and the general problem of disarmament under investigation by the Preparatory Commission, there was some difference of opinion as to whether a conference on private manufacture should be summoned, or whether the question should be considered at a general conference on disarmament. In its resolution the Assembly drew attention once more to the close connection existing between the supervision of private manufacture and the trade in arms. But, in recognising the relation between the problem of private manufacture and the general problem of disarmament, it decided that priority must be accorded to work on a disarmament convention. The Assembly added a rider to the effect that, if a disarmament conference was not called within a year a special conference on private manufacture should be convened.

13. In pursuance of this resolution the Council appointed a Special Commission for the preparation of a draft convention on private manufacture: and the United States Government were invited to assist in the work. This Commission adopted as the basis of its work the draft submitted by the Committee of Inquiry of 1926.^(h) The Special Commission was again confronted with a fundamental difference of opinion as to whether the convention should deal with the supervision of private manufacture only, or whether state manufacture should be included. The latter view was taken by the United States Government, and by many non-producing countries who would be placed in an inferior position as regards security if the publicity provisions of the Arms Traffic Convention were brought into force. The Special Commission were unable to reconcile the two points of view and produced alternative texts.⁽ⁱ⁾ The Commission also recommended that the study of a convention concerning private manufacture should

(g) League of Nations document A.47 1926. IX.

(h) *ibid.*

(i) *ibid.* C.219. 1927. IX.

(f) Cmd. 3448.

be continued *pari passu* with the work of the Preparatory Commission concerning the general convention. In these circumstances the Eighth Assembly (1927) reaffirmed the importance it attached to the conclusion of a convention which would enable producing and non-producing countries to be placed on an equal footing, and which would facilitate the entry into force of the Arms Traffic Convention of 1925: and referred the question back to the Special Commission.

14. In 1928 the Special Commission again failed to agree on a single text, although it agreed that the principle of publicity should be extended to state manufacture.^(j) The Eighth Assembly accordingly resumed all the previous resolutions on the subject, and appealed for a re-examination of the divergences of opinion by governments in order that a special conference on private manufacture might be summoned to meet at the same time as a general disarmament conference or at an earlier date.

15. The Special Commission held two meetings in 1929 but after exhaustive discussion made little further progress. Fundamental as well as subsidiary disagreements on principles and methods remained. The difficulties may be summed up as follows: The Covenant only dealt with private manufacture of arms, but experience had shown that private manufacture could not be considered *in vacuo*, but had to be related to other questions. The Arms Traffic Convention could not be put into force until private manufacture was controlled, but if private manufacture and not state manufacture were controlled, non-manufacturing states would be placed at a disadvantage. Control of state manufacture could not, however, be discussed without raising problems which lay within the province of the Preparatory Commission (*e.g.* publicity of war materials). The Special Commission accepted the impasse and abandoned the attempt to agree upon a single text of a draft convention.^(k)

16. The Tenth Assembly (1929) took note of the work of the Special Commission, and requested the Council to consider the desirability, "as soon as the Preparatory Commission for the Disarmament Conference had concluded its work in connection with the publicity of implements of war", of convening a further meeting of the Special Commission to complete the text of a preliminary draft convention. When the Eleventh Assembly met the Preparatory Commission had not completed its task and the Assembly merely repeated the wish that the Special Commission on Private Manufacture should be convened immediately after the Preparatory Commission had brought its work to a close.

C. The Disarmament Conference.

17. The Preparatory Commission completed its work in December, 1930; the Council in January, 1931, convened the Disarmament Conference for January, 1932, and gave instructions for conducting the work of technical preparation for the Conference. The Conference met on 25th January, 1932, and constituted a Bureau (which acts as a steering committee) and a General Commission (consisting of one representative of each participating power). The General Commission was authorised to constitute such commissions, sub-commissions, etc., as it might deem desirable; but it did not appoint a commission on private manufacture of and trade in arms. It should indeed be noted that the question of private manufacture of and trade in arms was of secondary importance compared with the wider problems of disarmament. The subject was not considered during the first phase of the Conference, but the general resolution of 23rd July instructed the Bureau to set up a special committee to submit proposals to this conference on the resumption of its work. The Bureau duly constituted a Special Committee on the Trade in and Manufacture of Arms in September, 1932, and the first meeting was held in October.

18. The Committee submitted a preliminary report^(l) on 12th November, 1932, recording differences of opinion of a fundamental character. The Committee had only taken two positive steps, it had appointed sub-committees to discuss private manufacture and trade respectively, and had drawn up a questionnaire which was circulated to governments. The Bureau of the Conference considered this report on 22nd November: it instructed the Committee to resume work as quickly as possible on the assumption that the provisions concerning private manufacture of and trade in arms would be included in the General Disarmament Convention. In particular the Committee was invited to consider in what conditions equality of treatment might be attained (*a*) between producing and non-producing countries, (*b*) between the different contracting countries (*e.g.*, in regard to special zones) and (*c*) between state manufacture and private manufacture. The Committee was further instructed to consider the question of supervision, but to postpone any final formula concerning limitation of and publicity in regard to war material, until solutions of these questions had been found by the competent organs of the Conference.

19. On 3rd June, 1933, the Committee submitted a progress report^(m) to the General Commission requesting decisions on points of principle on which the Committee had not been able to agree; namely whether private manufacture ought to be abolished, and whether the manufacture of arms ought to be internationalised. In addition the majority of the Committee (including the United Kingdom, United States and Italian delegations) expressed the opinion that decisions on certain questions, which were outside the competence of the Committee, were necessary before the difficulties confronting the Committee could be overcome. These questions were publicity of war material, supervision, quantitative limitation of war material and the control of civil aviation. A minority of the Committee (including the French delegation) asked the General Commission to take a decision on certain principles which they embodied in a list of questions. The same fundamental causes of disagreement which had divided the sub-committee of the Temporary Mixed Commission and of the Special Commission of the Council therefore reappeared in the discussions at the Disarmament Conference.

20. On 8th June, however, the United Kingdom Draft Disarmament Convention was accepted by the General Commission as the basis of a future convention. As the competent committees had not submitted reports, the draft did not contain chapters on private manufacture and trade, which were left for insertion at a later stage; and the draft was expressly accepted without prejudice to amendments or proposals submitted before or during the second reading "particularly as regards additional chapters concerning the manufacture and trade in arms." The General Commission did not meet until October, and was then faced with the situation created by the withdrawal of Germany from the Conference. Efforts to clear up this situation failed, and on 29th May, 1934, the General Commission met again to decide on the future course of the Conference. At this meeting three points were singled out for urgent solution, security, air disarmament, and manufacture and trade in arms. On the latter question the United States representative made an important declaration as to the willingness of his government "to work out by international agreement an effective system for the regulation of the manufacture of and traffic in arms." The people of the United States were aroused at the evils which had been revealed in connection with the production of, and traffic in, munitions of war, and the United States Government were prepared to negotiate, in connection with disarmament, a treaty which would deal "drastically" with the problem. The Bureau thereupon instructed the Special Committee on trade and manufacture to resume its work forthwith and in the light of the statements made by the United States delegate to report to it on the solutions it recommended.

(j) *ibid.* A.43. 1928. IX.

(k) *ibid.* A.30. 1929. IX.

(l) *ibid.* Conf. D.146.

(m) *ibid.* Conf. D.160.

21. It is important to note at this point the effect of the resolution taken by the Bureau on June 8th. While the Conference was engaged on the wider objective of general disarmament the discussions of private manufacture had taken a secondary place: but the wider question was now committed to private conversations between governments, while agreement on trade in and private manufacture of arms became an immediate objective. Secondly, the United States initiative infused new life into the discussions, and it was accompanied by a marked moderation of the French attitude, which had all along favoured prohibition, or at least international control, of private manufacture.

22. The Committee on Private Trade and Manufacture reported on July 2nd.⁽ⁿ⁾ Its work had been assisted by a memorandum from the United States delegation, and it submitted a draft text, commonly known as the Geneva Articles. These articles embodied the following principles: (1) national responsibility for the control of manufacture and trade: (2) equality of treatment for private and state manufacture: (3) international supervision: (4) publicity of licences for manufacture and export.

23. The Geneva Articles were however designed to form part of a disarmament convention and were not intended to be embodied in a separate instrument. At the meeting of the Bureau on November 20th the decision was taken to proceed with the negotiation of separate instruments on manufacture and trade, the constitution of a permanent disarmament commission, and budgetary publicity. At this meeting the United States delegation put forward composite draft articles (a) dealing with manufacture, trade, and the constitution of a permanent disarmament commission.

(n) *ibid.* Conf. D/C. G.171.

(o) *ibid.* Conf. D.167.

This draft, which borrowed features in a modified form from the Arms Traffic Convention of 1925, the Geneva Articles and the United Kingdom Draft Convention, was accepted as a basis of discussion by the Committee on Trade in and Manufacture of Arms when it met at Geneva on February 14th, 1935.

D. SUMMARY.

24. The question of private trade in and manufacture of arms has therefore been under discussion for fourteen years. The slow progress made in its solution has been due, as the preceding paragraphs have shown, to four principal reasons, which may be summarised, very briefly, as follows:

(1) The close connection between the control of manufacture and the control of trade, recognised *ab initio* and proved experimentally by the failure of the Arms Traffic Convention of 1925, was not maintained at an important stage of the work.

(2) An over-riding condition for the drafting of a convention has been the participation of the United States: but the United States Government, which showed a positive interest in arms traffic in 1925, did not take an active part in the discussions on private manufacture until 1934.

(3) The discussion of private manufacture of and trade in arms for obvious reasons has been merged, and frequently submerged, in the general disarmament negotiations.

(4) Disagreement on principles. The main disagreement has been on the issues, first of prohibition versus control of private manufacture, and secondly of national versus international control. Secondary difficulties have been the establishment and application of the principle of equality of treatment (a) between private and state manufacture, (b) between producing and non-producing states.

APPENDIX III

MEMORANDUM OF EVIDENCE SUBMITTED ON BEHALF OF THE FOREIGN OFFICE

EXPLANATORY NOTE

I submit herewith a Memorandum of Evidence dealing with item (2) of the Terms of Reference of the Royal Commission, which runs as follows:—

(2) "*To consider and report whether there are any steps which can usefully be taken to remove or minimise the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.*"

This Memorandum of Evidence after recapitulating briefly the work of the League of Nations in regard to Article 8 (5) of the Covenant, explains the attitude of His Majesty's Government in the United Kingdom, notes certain complementary conclusions they have reached and details the manner in which they consider the problem can best be dealt with.

(Signed) R. C. SERINE STEVENSON.

MEMORANDUM OF EVIDENCE

Article 8 (5) of the Covenant states that:

The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able

to manufacture the munitions and implements of war necessary for their safety.

2. A summary of the work of the League of Nations in regard to this paragraph of the Covenant is already in the hands of the Royal Commission in the form of a memorandum supplied by the Foreign Office,* and it is unnecessary to do more than recapitulate briefly the various stages through which the international study of the twin problems of arms manufacture and trade in arms has passed.

PART I

HISTORICAL SKETCH

3. *First stage.*—The first stage is represented by the work of the Temporary Mixed Commission, a body composed of individual experts selected for their technical qualifications. It produced reports in 1921, 1922, 1923 and 1924. In the course of these years progress towards a solution was blocked mainly by fundamental divergence of views on the subject of the private manufacture of arms, some states holding that it should be abolished and others that it should be subjected to control. In 1924 the two problems were separated and the co-operation of the United States made it possible to summon a Conference on the control of trade. The work of this Conference resulted in the Arms Traffic Convention of 1925 which, temporarily at any rate, disposed of the problem of the arms trade.

4. *Second stage.*—The second stage is represented by the work of the Co-ordination Commission which replaced the Temporary Mixed Commission. This commission consisted of government representatives. A Committee of Inquiry set up by it in conjunction with a Committee of the Council reported in 1926, its report being accompanied by a preliminary draft convention.

5. *Third stage.*—The third stage consisted of the work of the Special Commission appointed by the Council in December, 1926. This Commission reported in 1927, 1928 and 1929. At the outset it was confronted with a fundamental difference of view on the question whether private manufacture only should be controlled or whether all arms manufacture should be included. In 1928 part of this difficulty was solved by the attainment of agreement on the extension of publicity to state manufacture. In 1929 the Special Commission reported that it was still unable to eliminate certain fundamental differences.

6. In the meanwhile opposition to the 1925 Arms Trade Convention on the part of a number of states caused it to remain a dead letter though it had been ratified by the United Kingdom (subject to ratification by certain other powers).

7. *Fourth stage.*—The fourth stage is represented by the work of the Special Committee for the Regulation of the Trade in and the Private and State Manufacture of Arms and Implements of War, set up by the Disarmament Conference and usually known

as the Arms Committee. It should be noted in this connection that in the earlier stages of the Conference the problems of arms manufacture and trade were regarded as altogether secondary to that of disarmament. It was not therefore until September, 1932, that the Arms Committee was constituted. After reporting in 1932 and recording the same differences of opinion as had been previously encountered the committee was instructed to resume its work and in particular to consider how equality of treatment might be attained between producing and non-producing countries, between the various high contracting parties and between state and private manufacture. As this committee had not reported in March, 1933, no mention of arms manufacture and trade was made in the British Draft Disarmament Convention. It was however well understood that the eventual convention would have to include provisions to deal with these matters, and the Draft Convention was accepted in June, 1933, by the Conference as the basis of the future Disarmament Convention with an express stipulation to this effect.

8. The Arms Committee submitted a Progress Report in June, 1933, which in fact demonstrated clearly how little progress had been made. The General Commission of the Conference to which the report had been submitted did not meet again until October, 1933, when it had to deal with the situation created by the withdrawal of Germany. Diplomatic conversations were undertaken in an effort to clear up the situation, but without avail, and the General Commission met in May, 1934, to decide upon the future of the Conference. It was at this meeting that the United States representative made an important declaration on the willingness of his government "to work out by international agreement an effective system for the regulation of the manufacture of and traffic in arms".

9. By the time this point in the proceedings of the Conference was reached the whole position had changed. The possibility of reaching agreement on reduction or limitation of armaments had receded into the background and the energies of the Conference were being directed towards finding certain subjects on which it might be possible to agree pending the outcome of further direct exchanges of view

* See Appendix II, p. 569.

between governments on the main problem. Among these subjects was that of arms manufacture and trade, agreement on which became an immediate objective of the Conference instead of being a secondary consideration. The initiative of the United States, which was welcomed and seconded by the United Kingdom representative, gave fresh impulse to the study of the question and the Arms Committee met early in June, 1934, to consider a memorandum put forward by the United States Delegation. The ensuing weeks saw greater progress towards general agreement than had been achieved hitherto. Early in July, 1934, the Committee reported and annexed to their report a set of articles, generally known as "The Geneva Articles", which were intended for insertion into a Disarmament Convention. They were based on the principles of national responsibility for arms manufacture and trade, equality of treatment as between state and private manufacture and as between producing and non-producing countries, and international publicity and supervision.

10. These articles were referred to the Governments represented on the Conference for detailed study.

11. The foregoing historical sketch will serve to show the background of the whole question. It is proposed in the ensuing paragraphs to explain the attitude of His Majesty's Government in regard to the existence of, and the remedies for the "grave objections" to the private manufacture of arms and the "evil effects" attendant upon it which are mentioned in Article 8 (5) of the Covenant. It is then proposed to note certain complementary conclusions which His Majesty's Government have reached as a result of their study of the subject and of the experience they have gained in recent years. It is inevitable that these sections of this memorandum should also be to some extent historical. In the final sections, however, an attempt is made first to show the attitude of His Majesty's Government towards the latest international effort to solve the problem, which is represented by the United States Draft Articles (see paragraph 10 above), and secondly to give the Royal Commission some idea of the lines on which His Majesty's Government consider that this problem should be dealt with.

ATTITUDE OF HIS MAJESTY'S GOVERNMENT.

12. It will have been observed that the first stage in the study of the problem was carried out by the Temporary Mixed Commission which was composed of technical experts and not of government representatives. Governments, as such, were brought into the discussion on the formation of the Co-ordination Commission which first met in February 1925. It was as a result of the deliberations of this Commission that the Committee of Inquiry was set up (see paragraph 4 above) and recommended that Governments should be approached with a view to ascertaining their opinions. This was duly done by means of a questionnaire despatched to Governments early in 1926.

13. Grave objections to private manufacture. It will be recollected that the relevant passage in the Covenant which is quoted at the beginning of this memorandum refers first of all to the "grave objections" to which the private manufacture of armaments is open and secondly to the "evil effects attendant upon such manufacture". The attitude of His Majesty's Government on this matter has been consistent throughout the many years spent on the study of the problem. It is best described by citing first of all the replies of His Majesty's Government on three of the points in the questionnaire referred to in the preceding paragraph and secondly by quoting the views placed on record by His Majesty's Government in the Progress Report submitted to the General Commission of the Disarmament Conference by the Arms Committee in June 1933.

14. The three points in the Council Committee's questionnaire were:—

At the meeting of the Bureau of the Conference in November, 1934, it was decided, pending a settlement of the main problem of disarmament, to proceed with the negotiation of separate instruments, which could, if necessary, be brought into force independently, dealing with arms manufacture and trade, publicity of national defence expenditure and the constitution of a permanent disarmament commission. At this meeting the United States Delegation put forward a set of draft articles covering arms manufacture and trade and the permanent disarmament commission. These articles were considered by the Arms Committee at Geneva in February, March and April, 1935, with the result, broadly speaking, that the divergencies of view were narrowed down to two aspects of the question viz., the degree of international publicity to be accorded to arms production and trade, and the method of supervision to be employed. The Committee reported in April, 1935, and the report is being considered by the governments represented at the Disarmament Conference. It is contained in League of Nations document Conf. D.168, which is in the hands of the Royal Commission.

PART II

"(i) The nature and extent of the 'grave objections' of a national or international character, to the private manufacture of arms etc.

"(iii) Any possible obstacles to the conclusion of international agreements on the control of the private manufacture of arms.

"(v) The provisions which should be inserted in any convention on the subject".

15. The replies of His Majesty's Government which were drawn up by a sub-committee of the Committee of Imperial Defence under the Chairmanship of Lord Cecil were:—

"(i) So far as this country is concerned the British Government are not aware of any 'grave objections' of a national character. As regards objections of an international character the British Government do not know of any that are peculiar to private manufacture. In any case the Convention for the Supervision of the International Trade in Arms and Ammunition and in Implements of War, signed at Geneva on June 17th 1925, when in force, will deal with the international aspects".

"(iii) There are no obstacles.

"(v) Any convention on the private manufacture of arms ammunition and implements of war should be based on the principles contained in The Firearms Act, 1920".

"It is regarded as vital by the British Government that:—

"(a) The participation of all the principal manufacturing countries must be secured.

"(b) The scheme must not operate in time of war.

"(c) Control must be national and not international".

16. Evil effects attendant upon private manufacture. The views of the United Kingdom, Belgian, German, Italian, Japanese and United States Governments in regard to the alleged evil effects attendant upon the private manufacture of arms were set forth, as stated above, in the Progress Report of the Arms Committee of June 1933. They were as follows:—

"(1) The evil effects alleged to result from private manufacture fall roughly into two classes:

"(a) 'Misconduct' by individual concerns (interference with the Press, improper influence on Parliaments, etc.)

"(b) The supply of arms to undesirable quarters.

"Evil effects of the former class, if and where they exist, can be adequately dealt with by national legislation; evil effects of the latter class (which may also arise from state manufacture) would be obviated by proper regulations for the international traffic in arms.

"Such evil effects of all kinds as may result from the manufacture of arms, both state and private, will be automatically reduced by the acceptance of an effective limitation and reduction of war material".

17. It may be convenient here to sum up and illustrate the attitude of His Majesty's Government as set forth in the foregoing quotations.

(a) His Majesty's Government, while expressing no views in regard to the existence in any particular part of the world of "grave objections" to private manufacture and "evil effects" attendant upon it, are not aware of any grave objections of a national character in the United Kingdom and they are of the considered opinion that such objections and evil effects, if and where they exist, can be dealt with by a combination of national legislation and international regulation.

(b) While convinced that the control of arms manufacture and trade should be a matter of national responsibility, His Majesty's Government are in favour of the conclusion of international agreements on the subject. The following quotation from a speech made in the House of Commons on 8th November, 1934, by Sir John Simon, Secretary of State for Foreign Affairs, provides proof, if any is needed, that this is the case.

"His Majesty's Government like previous Governments are not able to agree with the view that the remedy for this situation lies in State monopoly. Neither national security nor the overwhelming needs of peace can be served by this method. The true method is by international agreement. We have done and are doing our best most energetically to promote such international agreement and strict regulation and control by every State in which arms are manufactured and exported."

(c) In the view of His Majesty's Government a convention dealing with the manufacture of and trade in arms can only come into force with the participation of all the principal manufacturing countries. This view it may be mentioned received endorsement in an unanimous report by the Economic Committee of the League of Nations in 1924.

(d) The evil effects of an international character which are alleged to be attendant on the private manufacture of and trade in arms are not confined to private manufacture. They can and should be dealt with by proper international regulations. The ratification by His Majesty's Government of the 1925 Arms Trade Convention furnishes a proof that they have been and are ready to deal with this aspect of the problem on international lines.

(e) An effective international convention for the reduction and limitation of armaments would by laying down limits for each high contracting party, *ipso facto* remove any inclination on the part of any power to indulge in competitive arming and would thus act as a powerful agent for the reduction of the evil effects of all kinds of both state and private manufacture of arms.

CONCLUSIONS REACHED BY HIS MAJESTY'S GOVERNMENT AS THE RESULT OF THEIR STUDY OF THE SUBJECT AND OF THEIR EXPERIENCE DURING RECENT YEARS.

18. The experience gained by His Majesty's Government during the international discussions of the last fourteen years has shown that the problems of arms manufacture and of arms trade cannot be dealt with separately. An attempt was made to separate them in 1924 (see paragraph 3 above). This effort resulted in the 1925 Arms Trade Convention which was signed or acceded to by thirty-eight states. Of these only twelve states ratified it, *viz.*, the United Kingdom, China, Denmark, Egypt, France, Latvia, Netherlands, Poland, Spain, Sweden, Venezuela and the United States of America: and three have acceded to it, *viz.*, Australia, Iraq and Liberia. The ratification of His Majesty's Government was to become effective on ratification of the Convention by nine of the principal arms manufac-

turing countries, *i.e.* Austria, Belgium, Czechoslovakia, Germany, Italy, Japan, Spain, Sweden and the United States of America. Despite the efforts put forward by His Majesty's Government to persuade these powers to follow their example only three of the countries in question, Spain, Sweden and, very recently, the United States of America have actually ratified it. The Convention therefore is, in fact, a dead letter. It is, moreover, likely to remain so because it does not provide equal treatment for producing and non-producing countries. Incidentally, the Convention created a number of special zones which rendered it unacceptable to Iran in particular. But the main objection to it lay in the fact that it provided for a certain degree of publicity to be accorded to war material exported by any of the High Contracting Parties. This would have had the effect of putting non-producing countries under a disadvantage in comparison with producing countries in that the steps taken by the former to fulfil their defence requirements would have been a matter of public knowledge while those taken by the latter would have remained secret. It is not surprising therefore that the purchasing countries were unanimous in maintaining that control of trade must be accompanied by control of manufacture. This state of affairs has convinced His Majesty's Government that equal treatment, so far as this is feasible, must be accorded by any convention to both producing and purchasing countries. The latter are and must inevitably remain to a certain extent in a position of inferiority in regard to the former in that the amount of their purchases is naturally known in the markets where they are made. But it is the present aim of His Majesty's Government to minimise this natural disadvantage as far as possible and they are consequently in favour of a convention which will provide for control and publicity for both manufacture and trade.

19. Secondly, His Majesty's Government have reached the conclusion that any convention providing for control by means of publicity for arms manufacture must cover both state and private manufacture. Holding, as they do, that the evil effects of an international character attendant upon private manufacture may also arise from state manufacture they could reach no other conclusion. Moreover, were private manufacture alone to be subject to control by means of publicity, those countries with large state manufacture would be placed in a position of great advantage.

20. Thirdly, the experience of His Majesty's Government in recent years in connection with the international prohibition of the supply of arms to belligerent states has convinced them that it is only by the enforcement by all states of a uniform system of national control of arms manufacture and trade that any international action of the kind can possibly be effective. Every state should assume by legislative or other means the necessary power (as is now possessed by the United Kingdom) strictly to control the export of war material from its territories. Every state should also possess the power to prohibit the transit of war material. In such conditions only will it be possible to rely on an effective prohibition of the supply of arms to any quarter of the globe should such action be internationally decided upon.

21. Fourthly the history of international negotiations more particularly since the War, has clearly shown that success can only be achieved by slow degrees and by taking modest steps in the desired direction. Where only two or three powers are concerned progress may be relatively rapid but, as the number of powers involved increases, the difficulties also increase and the rate of progress becomes correspondingly slower. In the case of a convention for the control of arms manufacture and trade where the participation of all the principal manufacturing countries is essential the difficulty of securing agreement is immeasurably greater than in the case, for instance, of the Abyssinian Arms Treaty of 1930 which was concluded between only four powers, has

been ratified and is now in force.* The length of time the problem has been under discussion and the many checks and disappointments which have been encountered in the course of these years have convinced His Majesty's Government that to attempt too much is only to incur failure once again. In any undertaking and more especially in international negotiations it is the first step that counts, and, in the view of His Majesty's Government, it would represent an achievement of great value if all the principal manufacturing countries could agree to a convention which would entail the acceptance of the following principles:

- (1) Strict national control of arms manufacture and trade.
- (2) Publicity for arms produced, exported or imported.
- (3) Establishment of an international supervisory organ.
- (4) Responsibility to that international organ for the accuracy of returns of manufacture and trade.

UNITED STATES DRAFT ARTICLES.

22. Moved by these considerations His Majesty's Government not only welcomed the initiative taken by the United States Delegation in May, 1934, in making an agreement on arms manufacture and trade one of the immediate objectives of the Disarmament Conference, but found themselves in general agreement with the Draft Articles submitted to the Bureau of the Conference by the United States Delegation in November, 1934.

23. As stated above, these Articles formed the subject of the deliberations of the Arms Committee of the Conference in February, March and April, 1935, and a very considerable measure of agreement was reached. The Committee was unanimous in (a) considering that control on national lines of arms manufacture and trade, by means of a system of licences, was essential, (b) accepting the principle of equal treatment of producing and non-producing countries, (c) accepting the principle of equal treatment of state and private manufacture of arms, (d) accepting the principle of publicity for all production, export and import of arms, (e) agreeing to the desirability of establishing the Permanent Disarmament Commission as an international supervisory organ and (f) accepting the principle of the responsibility of states to that organ for the accuracy of returns of arms manufacture and trade. It was on the methods of giving effect to certain of these principles that agreement could not be reached. This was particularly the case in respect of the degree of publicity to be accorded to arms manufacture and trade and in respect of the method of supervision to

* This is the only international treaty now in force regulating the supply of arms to any particular part of the world. It was signed at Paris on 21st August, 1930, by representatives of Abyssinia, France, the United Kingdom and Italy. Its conclusion was rendered necessary by the non-ratification of the Convention of St. Germain of 1919 and of the Arms Trade Convention of 1925, Abyssinia having, on admission to the League of Nations, undertaken to conform to the principles laid down in the former Convention, and having signed the latter Convention, which contained in Article 28 a specific undertaking in regard to the special zones régime. The preamble of this Treaty states that its object is to ensure an effective supervision over the trade in arms and munitions in Abyssinia and the adjacent territories so that the Emperor of Abyssinia might obtain all the arms necessary for the defence of his country and for the preservation of internal order and that it might be possible to prevent the menace to the peace of Abyssinia and of the adjacent territories of the other three powers which is caused by the acquisition of arms and munitions by unauthorised persons. The Treaty provides for the import of arms into Abyssinia only by the express authorisation of the Abyssinian Government, for the special marking of any firearms imported and for the publication of periodical returns of exports and imports of arms and ammunition from or into Abyssinia. It should be remarked that if at any time the attitude or disturbed condition of Abyssinia constitutes a threat to peace or public order the authorities of the adjacent territories can refuse to authorise the transit of war material.

be exercised by the Permanent Disarmament Commission.

24. **Publicity Provisions.**—As regards publicity, the United States Draft Articles provided, on the manufacturing side, for the communication to the Permanent Disarmament Commission of all orders for war material received by state and private factories and of returns of production, giving quantities of weapons produced. Similarly, on the trade side, provision was made for the communication to the Permanent Disarmament Commission of copies of export and import permits, which would give the actual quantities of weapons ordered, and of returns, also giving quantities, of all exports and imports effected. It should be remarked that during the deliberations of the Committee these proposals were expanded and extended, at the instance of the French Delegation, until they became a most complicated system whereby the whole process of arms manufacture and supply would be controlled from the time an order for war material was contemplated until the weapons concerned were actually delivered to defence forces.

25. His Majesty's Government consider that the original United States proposals, and *a fortiori* the system advocated by the French representatives on the Arms Committee, would involve a degree of publicity inappropriate to a convention which does not provide for any limitation of armaments, and known to be unacceptable to some of the manufacturing powers. It might well be that if the Articles under discussion ever came to form part of a general convention for the limitation of armaments, detailed publicity of arms production and trade would be desirable in order that some check might be kept on the observance of quantitative or qualitative limits. For present purposes, however, the only publicity required is that which would give to the world sufficient information of the general trend of the production and movements of war material. Moreover His Majesty's Government are convinced of the desirability of securing international acceptance of the principle of publicity for arms manufacture and trade and they are equally convinced that over-elaboration of the methods to be employed in giving effect to that principle will only defeat its own ends by inevitably leading to the rejection of the principle itself. They have accordingly proposed a system of publicity for the purposes of this convention which is simple, entirely adequate for the purpose in view, likely to prove internationally acceptable and entails the acceptance of the basic principle. It consists of provisions for (1) an advance annual return by each signatory showing the programme of expenditure during the year under each heading of the various categories of war material,* (2) a quarterly return of the total value, under each heading of the categories, of the war material produced during the preceding quarter; and (3) a quarterly return of the total value, under each heading of the categories, of the war material imported and exported during the previous quarter, showing the countries of origin and destination.

26. **Method of supervision.**—As regards supervision, the United States Articles, as amended by the United States Delegation shortly after the Arms Committee began its sessions, provided for a somewhat over-elaborate and complicated scheme whereby regional committees would be constituted by the Permanent Disarmament Commission at Geneva and would be entrusted with the task of carrying out, each in its allotted geographical sphere, a system of permanent and automatic supervision with local inspections. For the purpose of these inspections the committees or their representatives would have powers to visit and investigate the storage and shipping departments of factories and the war material contained therein, and to examine on oath officials and other persons. Here again the French Delegation sought to extend the scope of these proposals by advocating the appointment of resident inspectors in each of the signatory states as representatives of the Permanent Disarmament Commission.

* See Article 4 on page 578.

27. His Majesty's Government have made it clear on numerous occasions in the past that they are prepared to accept a system of permanent and automatic supervision as part of a general convention for the limitation of armaments. They have recognised that the obligations entailed by such a convention would be of a kind which might well demand the application of permanent and automatic supervision with local inspections, and despite the great technical difficulty, not only of devising a satisfactory system, but of applying it, they are willing to accept it if thereby they can promote that international agreement on the limitation of armaments which remains the object of their policy.

28. The obligations, however, which are entailed by a convention for the control of arms manufacture and trade are very different. Here there would be no question of limiting armaments either qualitatively or quantitatively. The obligations of the high contracting parties towards each other and towards the international supervisory organ would consist of the application by themselves within their own territories of a uniform system of national control of arms manufacture and trade and the rendering of certain periodic documentary returns. Such a convention would, in the view of His Majesty's Government, call for a different type of supervision from that which might be desirable in connection with a general convention for the limitation of armaments. For this reason His Majesty's Government do not consider the system contained in the United States proposals as altogether suitable and they have devised a modified form of supervision which is not only adequate for the purposes of this convention but would, they believe, prove internationally acceptable. It would consist of documentary supervision at Geneva, where the Permanent Disarmament Commission would examine the information communicated to it and would have the right if it so desired to request the high contracting parties to supply it with further particulars or explanations either in writing or verbally. For this purpose the Commission could ask that accredited representatives of governments should appear before it. Furthermore, the Commission would be entitled to hear or consult any expert or other person who might be in a position to throw light on any question which it might be examining.* Should the Commission have reason to believe that the information supplied to it was incomplete or inaccurate it would have the power to call the state concerned to account. The latter, on being thus approached, would be bound to furnish the Commission with such explanations as might be necessary to establish the facts. The Commission would thereafter draw up a reasoned report setting

forth the results of its inquiry. This report would be immediately communicated to the Council of the League of Nations and to the high contracting parties.

TEXT OF CONVENTION FAVOURED BY HIS MAJESTY'S GOVERNMENT.

29. As stated above (see paragraph 17 (b)) His Majesty's Government are in favour of the conclusion of an international agreement regarding arms manufacture and trade. It might in these circumstances be of assistance to the Royal Commission to reproduce the text of such a convention as would, in the view of His Majesty's Government not only attain the object set forth in paragraph 17 (a) above of dealing with the "grave objections" to the private manufacture of arms and the "evil effects" attendant upon it, if and where they exist, but would (1) ensure that the world should have timely information of the increase of the armaments of any country whether by import or manufacture, would (2) provide the machinery for the immediate imposition of an effective embargo on the export and import of arms, if and when such action should be internationally agreed upon, and would (3) constitute an international supervisory organ. It should be added that, in the view of His Majesty's Government a convention of this nature should be supplemented by a separate convention or protocol providing for publicity of national defence expenditure. A draft convention with which His Majesty's Government are in general agreement has been prepared by the Technical Committee on National Defence Expenditure set up by the Disarmament Conference. The text of this draft convention is appended as an Annex* to this memorandum.

30. The text which follows is that submitted to the Bureau of the Disarmament Conference by the United States Delegation in November, 1934, as provisionally amended by the United Kingdom Delegation in the course of the work of the Arms Committee in February, March and April, 1935. It is not by any means a final text as it is the result of a first reading only of the original United States proposals. It will, however, give the Royal Commission a clear idea of the general lines on which His Majesty's Government consider that the problem could best be dealt with. It might be added that their views on this question are shared, in general, by the Italian and Japanese Governments and to a large extent by the Polish Government. Explanatory notes are appended to certain articles where the meaning or object of any particular provision seems to need elucidation or illustration.

DRAFT ARTICLES FOR THE REGULATION AND CONTROL OF THE MANUFACTURE OF AND TRADE IN ARMS

(Being the Draft Articles submitted to the Bureau of the Disarmament Conference by the United States Delegation in November, 1934, as provisionally amended by the United Kingdom Delegation).

PREAMBLE.

The High Contracting Parties,

Recognising their entire responsibility for ensuring that the manufacture of and trade in arms and implements of war are only conducted in their territories in conditions which will safeguard public international order and will facilitate, in particular cases, the prompt enforcement of any international action which may be agreed upon with a view to preventing or restricting the supply of arms and implements of war—

have decided to conclude a convention with the following objects:

- (i) The national control of the manufacture, export and import of arms, in various countries;
- (ii) International publicity at Geneva for manufacture, export and import of arms;
- (iii) Providing the machinery for the immediate imposition of an effective embargo on the export

of arms, if and when such action should be internationally decided upon.

Note.—It will be observed that the objects and scope of the convention are thus clearly set forth. The principle of complete national responsibility is emphasised.

CHAPTER I. Article 1.

Each High Contracting Party assumes, in the territories under its jurisdiction, full responsibility for the supervision which is to be exercised over the manufacture of and trade in articles coming under Categories I to V of Article 4, with a view to ensuring the regular communication and the accuracy of the documents for publicity provided for in the present Convention.

Note.—This article lays down clearly the scope of the responsibility assumed by each of the high contracting parties. It was unanimously adopted by the Arms Committee.

* See note on Article 26 on page 581.

* See p. 583.

Article 2.

The High Contracting Parties will take the necessary legal steps to ensure in the strictest manner the execution of the provisions of the present Convention.

They will forward to the Permanent Disarmament Commission the text of all Laws, Regulations or other legal provisions which have been, or may be, enacted for this purpose, and of any amendments or additions thereto that they may make.

Note.—This article ensures that states will have the necessary legal and constitutional powers to give effect to the Convention. It was unanimously adopted by the Arms Committee.

Article 3.

The High Contracting Parties undertake to conform to the measures set forth in Chapter IV for ensuring the execution of the present Convention.

Note.—This text differs from that favoured by the majority of the Arms Committee which expressly referred to permanent and automatic supervision.

Article 4.

For the purposes of the present Convention, five categories of arms and implements of war are established as follows:—

CATEGORY I.

Military Armaments.

Arms, ammunition and implements of war, designed or intended for land, sea or air warfare, until such time as they may form part of the material coming under Categories II or III.

1. Rifles and carbines, and their barrels and bolts.
2. Machine-guns, automatic rifles and machine pistols of all calibres, and their barrels and bolts.
3. Guns, howitzers and mortars of all calibres and their mountings, barrels, recoil mechanisms and recuperators.
4. Ammunition for the arms enumerated under 1 and 2 above; filled and unfilled projectiles for the arms enumerated under 3 above, and prepared propellant charges for these arms.

5. Grenades, bombs, torpedoes and mines—filled or unfilled, and apparatus for their use or discharge. Periscopes for submarines.

6. Tanks, armoured vehicles and armoured trains and armour and bullet proof plates shaped for these vehicles.

CATEGORY II.

Naval Armaments.

Vessels of war of all kinds, including aircraft-carriers and submarines and their arms, ammunition and implements of war mounted on board and forming part of their normal armament.

CATEGORY III.

Air Armaments.

1. Aircraft, assembled or dismantled, both heavier than and lighter than air, which by reason of their design or construction are adapted or intended either for military or naval reconnaissance, or for aerial combat by the use of machine guns or artillery, or for the carrying and dropping of bombs, or which are equipped with or prepared for any of the arms or appliances referred to in paragraph 2 below.

2. Special guns and machine guns for aircraft, and their gun mounts and frames.

Bomb racks and torpedo carriers, and bomb or torpedo release mechanisms.

CATEGORY IV.

Arms and ammunition capable of being used for both military and non-military purposes.

1. Revolvers and automatic pistols provided the weight of the weapon is over 680 grammes (1 lb. 6 ozs.) and ammunition therefor.

2. Firearms designed, intended or adapted for non-military purposes such as sport or personal defence that will fire ammunition that can be fired from firearms in Category I.

CATEGORY V.

1. Aircraft, assembled or dismantled, both heavier than and lighter than air, other than those included in Category III.

2. Airscrews, fuselages, hulls, tail units and undercarriage units.

3. Aircraft engines.

4. The following essential component parts of aircraft engines covered by paragraph 3 above: crankshafts, cylinders, superchargers.

Note.—These categories of arms obtained general support in the Arms Committee but it may prove necessary eventually to re-arrange them to some extent, more particularly in order to bring them into line with the proposals for publicity of national defence expenditure (see ARMOX*).

CHAPTER II.

PROVISIONS FOR THE MANUFACTURE OF ARMS AND IMPLEMENTS OF WAR.

Article 5.

The High Contracting Parties undertake to forbid, in the territories under their respective jurisdictions, the manufacture of arms and implements of war (as set forth in Categories I, II and III of Article 4), unless the manufacturers have, in the case of private establishments, obtained a licence, and in the case of state establishments, an authorisation, to manufacture, issued by the Government.

Note.—This Article was unanimously adopted by the Arms Committee subject to reservations by the Italian and Japanese Delegations in regard to the issue of authorisations to state factories. It does not in fact appear to be necessary that the issue of such authorisations should be obligatory. The provision however was inserted partly in order to carry to its logical conclusion the principle of equal treatment for both state and private manufacture, but principally to ensure that all factories should be included within the scope of the Convention regard being had to the fact that in some countries there exist establishments in which there is both state and private participation.

Article 6.

The licence to manufacture will be valid for a period not exceeding (five years); it will be revocable at any time, and will be renewable for further periods of (five years) or less than (five years) by decision of the Government.

It will give:

- (1) the name and address of the manufacturer or the name, head office and principal works of the firm;

- (2) a designation of the articles, by the headings of Categories I, II and III in Article 4, the manufacture of which is authorized by the licence.

Note.—This Article ensures that governments shall have the power to revoke or renew licences to manufacture. It will be observed from this and from the preceding Article that it is left to individual governments to lay down the qualifications of manufacturers and the conditions on which licences to manufacture shall be issued, revoked or renewed. This Article as it stands was adopted unanimously by the Arms Committee. The majority of the Committee was however in favour of the addition of a paragraph providing for the communication to governments by manufacturers of all orders received by them.

Article 7.

The High Contracting Parties in so far as it pertains to their respective jurisdictions, will send to the Permanent Disarmament Commission:

- A. Within three months after the entry into force of the Convention, a list of the state establishments, manufacturers of articles appearing in Categories I, II and III of Article 4, specifying for each:

- (1) the name and location of the establishment;

(2) the designation by headings of the articles the manufacture of which is authorised, and thereafter, within thirty days after their occurrence, any changes in the information required under (1) and (2).

B. Within three months from the entry into force of the Convention, a copy of the licences to manufacture already issued to private establishments, within the thirty days following the end of each quarter, a return, even if blank, showing copies of all licences to manufacture granted, amended, renewed or revoked during the previous quarter.

C. At the beginning of the financial year (on a date to be determined): a return showing, by headings, for headings (to be determined) and by a total figure for the remaining headings, the national defence expenditure proposed in respect of the manufacture and purchase of articles in Categories I, II and III of Article 4.

D. Within sixty days of the end of the quarter, a quarterly return of the total value, under each heading of the categories in Article 4, of the articles the manufacture of which has been completed during the previous quarter, distinguishing in the case of articles under Category V—headings 2, 3 and 4, between those manufactured for the State and those manufactured for other purposes.

E.—1. Within thirty days of the laying down of each war vessel laid down in State or private shipyards in the territories under their jurisdiction, whether on behalf of the Government in whose territory the vessel is being constructed or of any other Government, a return giving the information detailed below:

The date of laying down the keel and the following particulars:

Classification of the vessel and for whom built;
Standard displacement in tons and metric tons;
Principal dimensions, namely, length at water-line, extreme beam at or below water-line;
Mean draught at standard displacement;
Calibre of the largest gun.

2. Within thirty days of date of completion of each war vessel, a return giving:

The date of completion together with the foregoing particulars relating to the vessel at that date.

Note.—This Article sets forth the publicity provisions in respect of manufacture or purchase (see paragraph 25 of this memorandum). It will be observed that publicity for vessels of war (paragraph E) is by quantities and not value as is the case with other weapons. Vessels of war are, however, subject to a certain degree of limitation in virtue of the naval treaties now in force. The opening phrase of the Article, paragraph B, and paragraph E, were adopted unanimously by the Arms Committee.

CHAPTER III.

PROVISIONS CONCERNING THE TRADE IN ARMS AND IMPLEMENTS OF WAR.

Article 8.

The High Contracting Parties undertake to prohibit, in the territories under their jurisdiction, the export of articles in Categories I to V inclusive, of Article 4, and the import of Articles in Categories I to III inclusive, of Article 4, without an export or import permit (declaration) issued by the Government.

The High Contracting Parties undertake to issue transit certificates in accordance with the stipulations of Article 16 (a) in respect of exports of articles in Categories I, II and III of Article 4 passing through the territories of third countries on their way to their authorised destinations.

The export permit (declaration) shall contain:

(a) A description of the articles in Categories I to V inclusive, the shipment of which is authorised, their number, aggregate weight and type (calibre for guns, tonnage for tanks, unladen weight and engine power for aircraft, etc. . . .).

(b) The name and address of the exporter with a reference to the authority to manufacture, if any.

(c) The name and address of the importing consignee, with a reference to the import permit for articles in Categories I, II and III.

The import permit shall contain:

(a) A description of the articles in Categories I to III inclusive, the import of which is authorised, their number, aggregate weight and type (calibre for artillery, tonnage for tanks, unladen weight and engine power for aircraft, etc. . . .).

(b) The name and address of the importing consignee.

Note.—This Article provides for a system of licensing for export and import and lays down what particulars should be included in the permits issued in respect of the exports from private establishments and in the declarations issued in respect of those from state establishments. It also lays down the particulars which should be included in the import permits. These particulars are necessary for purposes of national control and there is nothing to prevent governments from laying down that such permits or declarations should contain information additional to that provided for in this Article. It is not intended that these permits should be published like the manufacturing licences and authorisations as, were this done, the purchasing countries would be under a disadvantage in comparison with the producing countries.

Article 8 (a).

(Article dealing with licensing of agents.)

Note.—The Swedish Delegation on the Arms Committee put forward with the support of the Danish, Spanish and Swiss Delegations the text of an Article making all occupation in the capacity of agents for the sale of certain categories of arms conditional upon the grant of a special government licence (see page 16 of League of Nations document Conf. D.168). This article has not yet been discussed at Geneva and His Majesty's Government are examining it to see if it can be accepted. The principle underlying the proposal appears to be worth serious consideration.

Article 9.

The High Contracting Parties, in so far as it pertains to their respective jurisdictions, will forward to the Permanent Disarmament Commission within 60 days of the end of each quarter a quarterly return giving the total values of the articles, under the headings of the Categories in Article 4, imported and exported during the previous quarter, showing countries of origin and destination and distinguishing in the case of articles in Category V—headings 2, 3, 4—between those exported to or imported by a Government for its own use, and those exported or imported for use by private persons.

Note.—This Article contains the publicity provisions in respect of export and import (see paragraph 25 of this memorandum). The passage from the words "and distinguishing . . ." to the end of the Article is intended to deal with component parts of aircraft and aircraft engines which might be destined for use in military machines. This remark also applies to an analogous passage in Article 10.

Article 10.

The High Contracting Parties undertake that the export of articles in Categories I, II and III shall be for direct supply to the Government of the importing State, or with the consent of such Government, to a public authority subordinate to it.

Article 11.

Nevertheless, export for supply to private persons may be permitted in the following cases:

(1) Articles covered by Categories I, II and III exported direct to a manufacturer of war material for use by him for the requirements of his industry, provided their import has been duly authorised by the Government of the importing country.

(2) Rifles and carbines and their ammunition exported for supply to rifle associations formed for the encouragement of individual sport and duly authorised by their own Government to use them

provided their import is not contrary to any other provisions of the present Convention; such arms and ammunition shall be sent direct to the Government of the importing country for transmission by such Government to the associations for which they are supplied.

(3) Samples of articles covered by Categories I, II and III, exported for demonstration purposes direct to a trade representative of the exporting manufacturer, provided such representative is duly authorised by the Government of the importing country to receive them.

Article 12.

The High Contracting Parties undertake, in the territories under their jurisdiction, not to export or permit the export of the articles covered by Category IV of Article 4 without the export permit referred to in Article 8, Chapter III.

If, in respect of the import of these articles, the legislation of the importing country requires the endorsement of a duly authorised representative of its Government and if this fact has been notified by the said Government to the Government of the exporting country, then such an endorsement must have been obtained and submitted to the competent authorities of the exporting country before the export may take place.

Article 13.

The High Contracting Parties undertake, in the territories under their jurisdiction, not to export or permit the export of the articles covered by Category V of Article 4 unless the export permit referred to in Article 8, Chapter III, has been issued by the Government of the exporting country.

Note.—The preceding four Articles deal with the conditions in which signatory states may issue export permits. The substance of Article 13 which deals with Category V of Article 4 is in fact already covered by the first paragraph of Article 8 but it is reiterated here for purposes of balance as the other four Categories of Article 4 are dealt with specifically in Articles 10, 11, and 12.

Article 14.

Within thirty days of the end of each quarter the High Contracting Parties shall furnish a return in respect of each vessel of war acquired during that quarter, other than vessels of war constructed for such High Contracting Parties within their respective jurisdictions.

This return shall contain the following information:

- (I) Date of acquisition;
- (II) Classification of the vessel and from whom acquired;
- (III) Standard displacement in tons and metric tons;
- (IV) Principal dimensions, namely:
length at waterline;
extreme beam at or below waterline;
- (V) Mean draught at standard displacement;
- (VI) Calibre of the largest gun.

Note.—This Article is intended to cover the purchase of vessels of war from non-contracting states or of vessels of war not constructed to the order of the purchasing state.

Article 15.

The High Contracting Parties undertake not to apply a more favourable regime to imports of articles referred to in Article 4, coming from territories of non-contracting States, than that which they will apply to such imports coming from territories of contracting States, and to subject these imports, of whatever origin, and exports to non-contracting States, to the same conditions of authorization and of publicity.

Article 16.

The following operations shall not be regarded as exportation or importation within the meaning of the present Convention:

(a) The shipment of articles coming under Categories I to V of Article 4 from a territory placed under the sovereignty, jurisdiction, protection

or tutelage of a High Contracting Party, or from a territory in which a High Contracting Party enjoys special political or military rights under international instruments, and intended for the use of the armed forces of such High Contracting Party, wherever situated;

(b) the transfer by the High Contracting Party concerned of articles coming under Categories I to V of Article 4 from a country to which such articles may have been shipped as provided for in paragraph (a);

(c) the carrying of arms or ammunition by persons belonging to the forces referred to in paragraph (a) or by other persons in the service of a High Contracting Party, when such articles are required by those persons by reason of their duties or for their personal defence;

(d) the carrying of rifles, carbines, and the necessary ammunition therefor, intended exclusively for their own use, by members of rifle clubs, proceeding to marksmanship competitions authorised by their respective Governments;

(e) the movements of civil aircraft duly registered as commercial aircraft when effecting (1) commercial transport; (2) industrial or commercial flights; (3) tourist flights;

(f) the carrying of arms or ammunition by the personnel of civil aircraft on international routes and intended for the defence of the passengers or personnel of the aircraft.

Article 16 (a).

(a) The High Contracting Parties undertake to prohibit in the territories subject to their respective jurisdictions, the reloading, in the course of transit or transshipment, of arms, ammunition and implements of war as set forth in Categories I, II and III of Article 4, unless there has been produced to the Customs authorities in the country of reloading a certificate, issued by the Government of the exporting country, stating that valid export and import permits have been issued for the consignment of the articles specified therein to a named destination. No such articles shall be allowed to be reloaded for a destination other than that stated in the certificate without the issue of a new export permit.

(b) The High Contracting Parties undertake to prohibit the overland carriage through the territories subject to their respective jurisdictions of arms, ammunition and implements of war as set forth in Categories I, II and III of Article 4 unless there has been produced to their Customs authorities a certificate issued by the Government of the exporting country similar to that mentioned in paragraph (a) above. No such articles shall be allowed to be conveyed out of their territories for a destination other than that stated in the certificate without the issue of a new export permit.

(c) The certificate mentioned in paragraphs (a) and (b) of this article shall contain the following details:—

(1) A reference to the export and import permits in virtue of which the shipment is made.

(2) A designation of the arms, ammunition and implements of war by the headings of the categories in Article 4.

(3) The destination of the articles and the name and address of the consignee.

The certificate will accompany the consignment to which it refers and will be retained by the Government of the importing country.

(d) The High Contracting Parties undertake to apply the provisions of this Article in such free ports and free zones as may be situated within the territories subject to their respective jurisdictions.

(e) The High Contracting Parties will take the earliest opportunity of freeing themselves from any contractual obligations under which they may be towards non-contracting countries, inconsistent with the stipulations of this Article and, in the meantime, but not for more than two years from the date of

ratification of this Convention, only those requirements of this Article which do not conflict with those of such contractual obligations need be enforced.

Note.—The object of this Article is to prevent the unauthorised diversion of consignments of arms. The responsibility of the country of transit is confined to seeing that consignments of arms are accompanied by the necessary transit certificates and that they are not unloaded and reloaded for despatch to destinations other than those authorised without the issue of fresh export and import licences.

Article 16 (b).

(*Export Credits Article*).

Note.—His Majesty's Government put before the Arms Committee the draft of an Article which ran as follows:—

"The High Contracting Parties undertake that they will not provide any form of State financial assistance for encouraging the export of any of the articles enumerated in the Categories in Article 4."

The principle on which this proposal was based was not unsympathetically received by the Arms Committee and was referred to a Committee of Jurists for closer study. In the latter Committee doubts were expressed whether it would be proper for the Arms Committee to deal with a subject not necessarily in direct relation with the actual purpose of the Convention. Further examination of the problem was, however, not ruled out. The United Kingdom Delegation took note of the reasoned objections to which the proposal had given rise and undertook to reconsider it and possibly re-submit it in a revised form at a later stage. The matter is now under consideration by the competent Departments of His Majesty's Government.

The main objections to the practical realisation of the proposal appear to be;

- (1) that it goes beyond the scope of the present convention;
- (2) that it would result in inequality of treatment as between states manufacturing their own arms and those relying on private industry;
- (3) that it would be difficult if not impossible to cover all the indirect forms which state assistance might take;
- (4) that in some cases the application of the principle would prevent states from affording financial assistance to commercial undertakings which manufacture arms only incidentally.

CHAPTER IV.

Article 17.

There shall be set up at the seat of the League of Nations a Permanent Disarmament Commission composed of representatives of the Governments of the High Contracting Parties. Each such Government shall appoint one member of the Commission. Each member may be accompanied by substitutes and experts.

The Governments of the High Contracting Parties shall inform the Secretary-General of the League of Nations of the names of their representatives, substitutes and experts on their nomination and on any changes being made.

Article 18.

It shall be the duty of the Commission to watch over the execution of the present Convention.

Note.—These two Articles were adopted unanimously by the Arms Committee. It is not intended that the duties of the Permanent Disarmament Commission shall for ever be confined to those set forth in Article 18. Provision is made later in the draft convention (see Article 32) for an extension of the Commission's duties.

Article 19.

The Commission may be assisted by experts chosen by itself, not being experts appointed by the High Contracting Parties to accompany their representatives.

Article 20.

The members of the Commission, their substitutes and experts and the experts and agents of the Commission, when engaged on the business of the Commission, shall enjoy diplomatic privileges and immunities.

Article 21.

The Secretary-General of the League of Nations shall provide the Secretary of the Commission.

Note.—This and the preceding Article (20) were adopted unanimously by the Arms Committee.

Article 22.

The Commission shall set up committees of its own members, and shall determine their number, composition, and functions.

Note.—The majority of the Arms Committee while adopting this Article as it stands favoured the addition of three further paragraphs dealing with the constitution and composition of the regional committees (see paragraph 26 of this memorandum).

Article 23.

The Commission shall receive, co-ordinate, and carry out an examination of the information furnished by the High Contracting Parties in pursuance of their obligations under the present Convention.

Article 24.

Within the limits of the obligations assumed in the present Convention, the Commission may request the High Contracting Parties to supply in writing or verbally any supplementary particulars or explanations in regard to the information furnished under the present Convention.

Such requests shall normally be made through the representatives of the High Contracting Parties on the Commission. The High Contracting Parties agree to meet such requests, and to furnish the information desired through their representatives on the Commission or otherwise.

Note.—The two foregoing Articles were adopted unanimously by the Arms Committee. The majority of the Committee, however, favoured the addition to Article 24 of a sentence necessitated by the more complicated scheme of supervision which it advocated.

Article 25.

The Commission may take into account any other information which may reach it from a responsible source and which it may consider pertinent to the execution of its functions.

In all cases it will examine all information furnished by any member of the Commission.

Note.—The second paragraph of this Article was adopted unanimously by the Arms Committee.

Article 26.

The Commission shall be entitled to hear or consult any person who is in a position to throw any light on the question which is being examined by the Commission.

Note.—This does not mean the hearing of evidence offered by any volunteer who may come forward with information. It deals with the evidence of experts who by reason of their situation are competent to give evidence on particular points which may be engaging the attention of the Commission.

Article 27.

No national of any High Contracting Party may be heard in virtue of Article 26, unless its representative on the Permanent Disarmament Commission shall have been duly notified in advance of such hearing and given an opportunity to be present thereat.

Article 28.

The Commission shall publish quarterly a return of the statistical data furnished under the provisions of Articles 7 and 9, and the results of its examination of these data duly co-ordinated and showing the

situation as regards the manufacture export and import of the articles in Categories I to V.

Note.—This Article was adopted unanimously by the Arms Committee.

Article 29.

Should the Permanent Disarmament Commission have reason to believe that an infringement of the present Convention has occurred, or that information supplied to it under the Convention by a High Contracting Party is incomplete or inaccurate the Commission will call upon the High Contracting Party concerned to supply it with such explanations as are necessary to establish the facts.

The High Contracting Parties undertake to furnish these explanations, either verbally by responsible officials, or in writing, as desired by the Permanent Disarmament Commission.

The Commission will draw up as soon as possible a report giving its reasons for the steps taken and the result of its examination in the matter.

Note.—This Article sets forth the procedure for the Permanent Disarmament Commission in cases where it has reason to suspect the accuracy or completeness of returns rendered to it by signatory states (see paragraph 23 of this memorandum). The majority of the Arms Committee were in favour of a complicated system of permanent and automatic supervision with local inspections. This system, to which reference is made in paragraph 26 of this memorandum, is set forth on pages 25-30 of the Committee's report (League Document Conf. D.168) which has been communicated to the Royal Commission.

Article 30.

Each member of the Commission shall be entitled to require that, in any report by the Commission, account shall be taken of the opinions or suggestions put forward by him, if necessary in the form of a separate report.

Article 31.

All reports by the Commission shall be immediately communicated to the High Contracting Parties and to the Council of the League of Nations.

Note.—The two foregoing Articles were adopted unanimously by the Arms Committee.

Article 32.

In addition to the duties assigned to it under this Convention, the Permanent Disarmament Commission will undertake such other duties as may be assigned to it hereafter by international agreement.

Note.—This Article enables the Permanent Disarmament Commission to undertake other duties than merely those which it would have in connection with this Convention.

Article 33.

Within the limits of its functions, the Commission shall supply the Council of the League of Nations with any information and advice which the Council may request of it.

Article 34.

The Commission shall meet for the first time, on being summoned by the Secretary-General of the League of Nations, within three months from the entry into force of the present Convention, to elect a provisional President and Vice-President and to draw up its Rules of Procedure.

Article 35.

Thereafter it shall meet at least once a year in ordinary session on the date fixed in its Rules of Procedure.

It shall also meet in extraordinary session:

1. When such a meeting is prescribed by the present Convention;
2. If its Bureau so decides, either of its own motion or at the request of one of the High Contracting Parties;
3. At the request of the Council of the League of Nations.

Article 36.

Except in cases where larger majorities are provided for under the present Convention or in the Rules of Procedure of the Commission, the decisions of the Commission will be taken by a majority of the members present and voting.

A vote may only be taken on the adoption or amendment of the Rules of Procedure of the Commission if at least half of the High Contracting Parties are represented at the meeting.

A majority of two-thirds of the members present and voting will be necessary for the adoption of the Rules of Procedure or amendments thereof.

The Commission may only validly vote upon amendments of the Rules of Procedure provided that the subject of such amendments has been stated specially in the notice of meeting.

Article 37.

The general expenditure of the Commission shall form the subject of a special chapter in the budget of the League of Nations.

The High Contracting Parties who are not members of the League shall bear a reasonable share of the said expenditure. An agreement to this effect will be reached between these parties and the Secretary-General of the Commission.

The travelling expenses and subsistence allowances of the members of the Commission and their substitutes and experts shall be paid by their respective Governments.

The Commission shall draw up regulations relating to the expenditure necessitated by its work.

Note.—The five preceding Articles were adopted unanimously by the Arms Committee. The majority of the Committee, however, favoured the addition of a paragraph to Article 35 dealing with the direction of the activities of the regional committees of the Permanent Disarmament Commission (see note on Article 22 above).

CHAPTER V.

GENERAL PROVISIONS.

Note.—It will in all probability be necessary to have a Chapter of General Provisions. The following Articles were adopted by a Jurists' Committee set up in March, 1935, by the Arms Committee at Geneva. They will serve as a basis for future discussions but should only be regarded as being in preliminary draft form.

Article a (Suspension of the Convention).
In time of war and without prejudice to the rules of neutrality, the provisions of Articles * of the present Convention shall be suspended from operation until the restoration of peace so far as concerns the manufacture or consignment of articles that appear in Categories I to V inclusive, on behalf of or to the belligerents.

Article b (Neutrality).

It is hereby declared that in such measure as a High Contracting Party can remain neutral in conformity with its international undertakings the said High Contracting Party shall not be bound to prevent the export or transit for the use of either belligerent of the articles appearing in Categories I to V inclusive.

Article c (Derogations).

If, during the term of the present Convention, a change of circumstances constitutes, in the opinion of any High Contracting Party, a menace to its national security, such Party may suspend temporarily, the application of the provisions of Articles

Such suspension shall compulsorily extend, if the High Contracting Party so requests, to manufactures effected on its behalf in the territory of other States and to exports consigned to it.

Every suspension shall be subject to the following conditions:

(a) that the High Contracting Party shall immediately notify the other High Contracting Parties,

* The Articles referred to are those providing for publicity and, in certain circumstances, supervision.

and at the same time the Permanent Disarmament Commission, through the Secretary-General of the League of Nations, of such temporary suspension;

(b) that, simultaneously with the said notification, the High Contracting Party shall communicate to the other High Contracting Parties, and at the same time to the Permanent Disarmament Commission, through the Secretary-General, a full explanation of the change of circumstances referred to above.

The Permanent Disarmament Commission shall meet without delay, and its members shall advise as to the situation thus presented.

When the reasons for this temporary suspension have ceased to exist, the said High Contracting Party will resume the observance of the provisions

of the present Convention and will make immediate notification to the other High Contracting Parties, and, through the Secretary-General of the League of Nations, to the Permanent Disarmament Commission.

Article d (Treaties of Commerce).

The High Contracting Parties agree that the refusal of any High Contracting Party to issue an export licence for, or permit the transit of, articles coming under Categories I to V shall not be considered as constituting a contravention of any treaty stipulation subsisting between themselves prohibiting the placing of restrictions on the exportation or transit of articles of Commerce.

ANNEX

DRAFT CONVENTION

ON PUBLICITY OF NATIONAL DEFENCE EXPENDITURE

(Prepared by the Technical Committee on National Defence Expenditure set up by the Disarmament Conference.)

DRAFT ARTICLES.

Article A.

The High Contracting Parties undertake to give publicity to all national defence expenditure by whomsoever that expenditure is incurred and whatever the nature and origin of the resources out of which the said expenditure is met.

Such publicity shall be given in conformity with the stipulations contained in Articles B to N and in the annexes to this part of the Convention and on the basis of reciprocity stipulated in those articles and in their annexes.

Article B.

Each High Contracting Party shall communicate the following documents:

1.—(a) The draft general budget (estimates) of the central power, the draft individual budgets of each of the departments of National Defence;

(b) The draft individual budgets (estimates) of the other Ministries and draft special budgets whenever these documents include national defence expenditure.

2.—(a) The general budget of the central power and the instruments enacting that budget, the individual budgets of each of the departments of National Defence;

(b) The individual budgets of other Ministries, of colonies, protectorates, overseas territories, territories under the suzerainty of the High Contracting Parties or for which a mandate has been conferred on the High Contracting Parties, and special budgets, whenever these various documents include national defence expenditure.

3.—(a) The general closed accounts of the central power, the individual closed accounts of each of the departments of National Defence;

(b) The individual closed accounts of other Ministries, of colonies, protectorates, overseas territories, territories under the suzerainty of the High Contracting Parties or for which a mandate has been conferred on the High Contracting Parties, and special accounts, whenever these various documents include national defence expenditure.

Article C.

The High Contracting Parties shall forward the documents specified in paragraphs 1 and 2 of Article B within a period of thirty days of their publication, or alternatively, of their receipt by the central home administration, and in any case within a period of three months from the date on which the aforesaid documents are given their final form.

The closed accounts specified in paragraph 3 of the same article shall be despatched within thirty days of their publication, or alternatively, of their receipt by the central home administration. In any event, such accounts shall be published in time to be

attached to the statement, the communication of which is provided for in Article F of the present Convention.

Article D.

The High Contracting Parties shall forward a statement of the estimates of national defence expenditure compiled in accordance with the instructions given in the annexes in respect of the first two financial years after the coming into force of the Convention. This statement, accompanied by reconciliation tables, shall be despatched within three months of the beginning of the financial year in accordance with the conditions mentioned in Annex III, 1 (b).

For the third financial year and following financial years, the High Contracting Parties undertake to furnish a statement of their estimates of expenditure in the simplified form which the Permanent Commission will indicate. In drawing up the form of this statement, the Permanent Commission shall endeavour, in the light of the experience gained during the preceding years, to reduce the figures shown in the statement to one global figure for each of the forces.

Article E.

The High Contracting Parties shall forward for each financial year two summary statements showing, in relation to the grand total of the initial national defence expenditure authorisations, what changes have been made in that total from the time when the authorisations were fixed up to the end of periods of nine and fifteen months respectively, reckoned from the beginning of the financial year.

The two aforementioned summary statements, compiled in accordance with the instructions laid down in Annex IV, shall be despatched within fifteen days of the expiry of the two periods of nine and fifteen months respectively, referred to in the preceding paragraph.

Article F.

The High Contracting Parties shall despatch within fourteen months of the end of the financial year a statement of the payments effected, compiled in accordance with the instructions prescribed in Annex III.

This statement shall be based on the closed accounts, the communication and dates of despatch of which are prescribed respectively in Article B, paragraph 3, and Article C, paragraph 2.

In addition, the High Contracting Parties shall attach to the statement the following supporting documents:

A certified statement of the national defence expenditure included in the accounts of the federated States;

A certified statement of the national defence expenditure effected by regional or local public bodies.

Article G.

Without prejudice to the general provisions of the Convention relating to supervision, the High Contracting Parties undertake to communicate, on receipt of a special request accompanied by a statement of reasons from the Permanent Commission, the individual budgets and accounts of civil ministries, special budgets and accounts, the budgets and accounts of federated States or of regional or local bodies, the regular and periodical communication of which is not provided for under the terms of Article B.

Article H.

The High Contracting Parties undertake, so long as the Convention remains in force, not to reduce the degree of detail of their budgets and accounts as submitted to the Conference to an extent which would make it more difficult for the Permanent Commission to check the accuracy of the figures contained in the statements and to follow the financial outlay devoted by each State to its armed forces.

Such High Contracting Parties as have laid before the Conference unpublished budgetary documents of a more detailed character than those actually published at the time when the unpublished documents were submitted, undertake in future to introduce into their published budgets and accounts a degree of detail at least as great as that of the unpublished documents submitted to the Conference.

As regards the High Contracting Parties whose documentary material it was not possible for the Conference to examine, the Permanent Commission will decide whether the degree of detail of the published budgetary documents furnished in support of the first statements supplied in execution of the Convention is satisfactory; if necessary, it will specify any modification in the detail which, in its opinion, should be introduced.

Article I.

The Permanent Commission shall verify the statements provided for in Articles D and F of the present Convention before publishing them.

During the examination of these statements, the Commission may ask the Governments concerned for any additional particulars and explanations that it considers necessary.

If, as a result of this examination, the Commission considers that alterations should be made in the figures supplied to it, it shall inform the Government concerned of the changes which it would wish to be made in these figures, stating the reasons therefor.

The statements published by the Commission shall show the figures as supplied or corrected by the Governments. Should agreement not be reached between the Commission and the Government concerned as regards the figures in the statements, the Commission shall attach to the statements a note specifying in detail the changes which it considers should be made in the figures submitted to the Government.

Article J.

The Permanent Commission shall follow the progress made by the States in the presentation of the documentary material provided for in the preceding articles.

By the continuous examination of the whole of this documentary material, the Commission shall, on the one hand, follow the development of the financial outlay devoted by each State to its national defence and, on the other hand, see the changes in the military strength of each country by means of the information thus collected.

Article K.

The stipulations of the present Convention shall apply, in the case of each High Contracting Party, to the first financial year following the entry into force of the Convention, subject, however, to the rules laid down in Articles L to N.

TRANSITIONAL PROVISIONS.

Article L.

The High Contracting Parties shall forward to the Permanent Commission all the documents enumerated in Article B, paragraphs 1 and 2, in respect of the financial year already in progress at the time of the entry into force of the Convention. These documents shall be dispatched not later than two months after the entry into force of the Convention. Within nine and fifteen months, respectively, of the beginning of the financial year in progress when the Convention comes into force, the High Contracting Parties shall dispatch a list of all laws and other instruments by which the grand total of the initial national defence expenditure authorisations in respect of that year may have been changed, together with the texts of all such laws and instruments.

Article M.

The first statement supplied by the States in pursuance of the provisions of Article F shall be accompanied, not only by the closed accounts relating to the financial year for which this statement is compiled, but also by the closed accounts of the three previous financial years.

If the High Contracting Parties, when presenting the first statement, are not in a position to communicate the closed accounts for the three previous financial years, they shall lay before the Permanent Commission certified statements of payments effected for national defence during each of these three financial years, it being understood that the closed accounts themselves of the last three financial years will be despatched as soon as possible.

Article N.

The High Contracting Parties referred to in Article H, paragraph 2, shall be entitled to despatch their draft budgets and budgets together with the accounts in respect of the first two financial years in the form in which such documents were published prior to the entry into force of the Convention. In support of the statements, they shall, however, append certified statements of estimates and payments so compiled as to have the same practical value for the purpose of checking by the Permanent Commission as the statements of payments submitted to the Conference.

Note.—These Draft Articles and the Annexes thereto are contained in League of Nations Document Conf. D./C.G. 160 (1) [Conf. D./C.D./C.T. 239 (1)] of 17th December, 1934.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

20

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

TWENTIETH DAY

FRIDAY, 8TH MAY, 1936

WITNESS—

COLONEL SIR M. P. A. HANKEY, G.C.B., G.C.M.G., G.C.V.O.

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TWENTIETH DAY

Friday, 8th May, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. O. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Colonel Sir M. P. A. HANKEY, G.C.B. G.C.M.G., G.C.V.O., called and examined.

4313. *Chairman*: You have been good enough, Sir Maurice, to prepare a statement* for us, which we have before us in print; but before dealing with that I will ask you, if you will, to give us, for the benefit of ourselves and also of the Press, what your official position is, and also to explain your experience in the matters which are the subject of our inquiry.

Sir Maurice Hankey: I will take your second question first, if I may. I first came into Imperial Defence as far back as 1901, when, as a young officer in the Royal Marine Artillery, I was attached to the Naval Intelligence Department of the Admiralty. There I used to "devil" for my Chief, the Director of Naval Intelligence, who was a member of the Committee of Imperial Defence from its inception. Then I went abroad in 1906 as an Admiralty representative on a Committee on Re-armament and visited the defended ports of the Empire for which the United Kingdom was responsible. I was again abroad in 1907/08 on the staff of the Naval Commander-in-Chief in the Mediterranean. In 1908 I came for the first time to the Committee of Imperial Defence as Naval Assistant Secretary. In 1912 I became Secretary to the Committee of Imperial Defence, and I have remained in that position ever since, and I am still the Secretary. Then came the War, and I was Secretary to all the different bodies that successively controlled our war effort—the War Council, the Dardanelles Committee, the War Committee, the War Cabinet, and the Imperial War Cabinet. I was Secretary to many Inter-Allied Conferences and consultations during the War, and the British section of the Secretariat of the Supreme War Council was a branch of my office; so I attended every meeting of the Supreme War Council. After that I became British Secretary to the Paris Peace Conference, and there I was Secretary to the Council of Four, of whose meetings I kept the only complete record. I had become Secretary to the War Cabinet in December, 1918, and after the War I remained the Secretary to the Cabinet. When the Cabinet passed from the War Cabinet to the normal Cabinet I remained Secretary, so that I have been Secretary to the Cabinet from December, 1918, until to-day, very nearly twenty years. From 1923 until to-day I have also been Clerk to the Privy Council. I have been Secretary-General to all the Imperial Conferences since the War, except Ottawa, and I was Secretary-General or else Secretary to the United Kingdom delegation on a very large number of international conferences since the War. These include—perhaps I should mention this—the only two Disarmament Conferences that actually achieved quan-

titative limitation (the recent Conference which has just closed achieved qualitative but not quantitative limitation). I was at the Washington Conference in 1921/22, where I was Secretary to the British Delegation and the British Empire Delegation, and the London Naval Conference, where I was Secretary-General. So I have really been in Imperial Defence, in peace and in war and over a very wide range of business ever since 1901, or, if you prefer it, since 1908, when I came to the Committee of Imperial Defence.

Now I come to the second question, which is the status of my evidence. In my personal capacity I appear as one who has been closely concerned with the central problems of the defence of the country and the Empire for 35 years. I should like to add that in preparing this evidence I have been in close touch with the government departments principally concerned—that is to say, the Admiralty, the War Office, the Air Ministry, the Foreign Office, the Board of Trade, and the Treasury, to all of whom I am indebted for much of my material and for help at every stage. In the government service team work is now very much the order of the day, both in defence matters and in other matters, and my two memoranda† that I have sent to you may be taken as representing broadly the views of the officials in those departments, and as the central case around which any technical evidence which the Royal Commission may require from government departments will be dealt with. At the same time, I should like to state personally, although no one has asked me to do so, that I cannot commit other officials to every single word that I say. I cannot consult them as to what I say under cross-examination. The Prime Minister and, for that matter, his predecessor gave me a free hand to help the Royal Commission to the best of my ability; but there is one point which I must emphasise—that while as a public servant I have naturally avoided saying anything that I know to be contrary to government policy, my remarks in no way commit the Prime Minister or any other Minister. I am not speaking for the Government; I have no authority of that kind.

4314. *Chairman*: Thank you. Do you wish to make a statement independently of your statement of which we have copies, or how do you propose to deal with your evidence?

Sir Maurice Hankey: I have thought this over very carefully, Sir John. The memorandum is too long to read. On the other hand, as I am stating a very large case, I think that perhaps the best plan would be if I made a verbal statement to you. Of course, it will not be as complete as the written statement, but it will give the heads, if that suits

† For second memorandum see Appendix to Minutes of Evidence, Day 22.

* Appendix A, p. 606.

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[Continued.]

the Royal Commission. I will do whatever you wish. 4315. *Chairman*: I think so. We have, of course, the full and detailed information in the printed statement.

Sir Maurice Hankey: Yes.

4316. *Chairman*: And, of course, that will be part of our proceedings and be available to the press; but if you think it is convenient to deal with it in a more summary manner verbally, by all means do so.

Sir Maurice Hankey: It will take me some time. 4317. *Chairman*: Never mind, we are at your service.

Sir Maurice Hankey: I want to make a few preliminary remarks of an explanatory nature. My evidence is devoted exclusively to the first item of the terms of reference; that is to say, the question of the abolition of private manufacture and trade, and the substitution of a state monopoly. I do not touch the other two items at all. My evidence consists of two memoranda; the first contains the case in favour of the maintenance of private manufacture and trade from the point of view of imperial defence; the second consists of observations on the evidence in favour of the abolition of private manufacture. To-day I shall confine myself to the first memorandum; I do not think I can take both in one day.

4318. *Chairman*: Very well; we are quite content with that.

Sir Maurice Hankey: Taking the two memoranda as a whole I can give the results—and I think it is best that I should at the outset—in three sentences. First, prohibition of private manufacture would be disastrous to Imperial Defence; second, in any case it is out of the question when we are in the throes of a great programme of re-conditioning our forces; and, third, the case for prohibition has not been established. That is what I am going to try to state.

4319. *Sir Thomas Allen*: Will you repeat that?

Sir Maurice Hankey: All three?

4320. *Sir Thomas Allen*: No; the last.

Sir Maurice Hankey: The case for—that is, for prohibition—has not been established. Then I ought to give a warning: that it is possible that there may be some questions asked me which, in the public interest, I should not like to reply to in public, and I should ask to be examined in private. Next, I am not a technical expert, and I do not pretend to answer detailed technical questions; those you may have to get other evidence on.

Now I come to my first memorandum, and at the beginning of that I mention the White Paper of 1935*, which sets out the peaceful aims of British policy. That is repeated in the White Paper of 1936† which was produced after my evidence was sent in; but in both White Papers the case is made as to why a re-conditioning of our armaments can no longer be delayed. Of course, in the re-conditioning of armaments the provision of war material is one of the most important items; so that the question—that is to say, whether you have private manufacture or government manufacture or both—is one of supreme importance to Imperial Defence. That is the only reason why I am here to-day.

I have a second introductory observation to make. I quote Article 8, paragraph (5), of the Covenant, with which you are very familiar. Perhaps I had better read it:

The members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety.

The point I want to make is that that does not suggest prohibition or state monopoly of armaments, but the prevention of the alleged evil effects.

In my second memorandum I shall show that the alleged "grave objections" and "evil effects" were never investigated officially by the Peace Conference, nor nationally, nor internationally before the Peace Conference; it was just an assumption.

Now the third introductory point is some remarks on the difficulties in the matter of definitions. The first is the definition of what are arms and munitions of war. I give a long list, containing everything from battleships to boots; the different categories shade off into one another. There are offensive lethal weapons; then there are defensive lethal weapons. They shade off into protective material, armour, anti-gas material, and clothing. Then there are scientific accessories; there are scientific instruments which are essential to the use of those armaments whether offensive or defensive. Next you shade off into manufactured or semi-manufactured components and constituents; then you get raw materials. In a parallel category you get transport of all kinds by sea, land, and air. You have the fuel for the transport—vital. You have radio, telegraph and telephone apparatus, signalling apparatus, and in some cases water supplies—in some campaigns you cannot carry on without them—railway material, and then you get to food supplies, clothing, boots.

There is an equal difficulty as to where you are going to draw the line on the definition of an armaments firm. There are no armaments firms in this country—not purely armaments firms. Vickers is the nearest, but they produce also important civilian products. Imperial Chemical Industries, I understand, has been generally admitted not to be an armaments firm, though they are very important to armaments in war. Then you get sub-contractors who make tremendously important things for the armaments firms or for the government in their factories. Next you get firms constituting reserve sources of supply, to which I shall come later. To show how difficult it is, the Admiralty tell me that nearly one thousand firms are required to build a warship.

I think that a logical definition would be extremely difficult to draw. If you limit the definition to lethal weapons, most of the alleged objections would be raised against some of the excluded items, and compromise would not end the controversy. However, the definition is not required unless you have decided to recommend prohibition; so I am not going to spend any more time on that, since, as I told you, the case which I am making at this moment is that private manufacture is indispensable to imperial defence.

That brings me to Part II of my memorandum. From this point on my evidence follows as closely as I can the first part of your terms of reference, and takes up in succession the various points that arise on the first part of the terms of reference. So I deal first with the national aspect of prohibition. I have to take the national aspect in peace, and the national aspect in war, and I have to take each of the three Services. Between peace and war, as I show, the distinction is a little artificial; because obviously your preparations in peace are designed entirely for what you require in war, so they shade off; but I have tried as far as I can to follow the terms of reference.

Now, our general system is set forth at the end of paragraph 10 of my evidence, which I am going to read, as follows:—

"The essence of our system is that private firms should keep, in peace, a certain amount of plant in working order and at least a nucleus of skilled workers, thus ensuring a certain degree of immediate production in war. To encourage them to do this they must have orders in peace. Particularly in the case of the Army, Government orders are insufficient for the purpose owing to the vast difference between expenditure of ammunition

* Cmd. 4837.

† Cmd. 5107.

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and requirements of all kinds of war material in peace and war respectively. Hence the vital importance to us of trade."

We turn now to the practicability and desirability of the abolition of private manufacture in peace, and I will turn first to the Navy as the senior service. The Navy relies mainly on private firms for its peacetime supplies. That is true of shipbuilding and of armaments. From state factories they obtain a few special requirements, such as torpedoes; they have a torpedo factory, although some parts of the torpedoes are manufactured by private firms. Then they have a cordite manufactory. To a less extent also they depend on state establishments for transferable gun mountings, fuses, certain shell, and ammunition components. From private firms they get practically everything else.

Coming to warships, I want to draw your attention to Table 1, in paragraph 13 of my evidence; but I have been able within the last few days to have that table brought up to date; the original table was compiled a year ago, and within the last few days, since the publication of the Naval Supplementary Estimates, I have been able to bring the table up to date.* The first part of it shows, as in the other table, warships under construction, and the second part shows the ships to be ordered. These are British ships for the British Navy either under construction or to be ordered in 1936. In commenting on the original table in my written evidence I drew attention to the large proportion of ships which were being constructed in private yards. That proportion is increased in the new table. In the first place, among the ships to be ordered are two capital ships, and both of those are to be ordered from private yards. That is a tremendous increase. Of course, capital ships are very costly, and it alters the whole proportions of the thing; it puts the proportion much higher in favour of private yards. Next, cruisers, that remains as it was, in the proportion of 10 to 6—1 am adding together those under construction and those on order. Aircraft carriers have gone up from one to two, because there is one going to be ordered in 1936. Take also another very big item; the 34 destroyers are all being manufactured by private firms. The two aircraft carriers are both by private firms, and the 34 destroyers. Then submarines—they have gone up from 6 to 4 to 7 to 4; that is seven to private firms against four to government yards. Now taking the whole lot of the ships, adding up to 55 in private yards now under construction, plus the 38 to be ordered in 1936, you will find it works out at 93 ships under construction or to be ordered from private firms, and the government 16. So that the proportion has gone up from 4 to 1 in favour of the private firms to very nearly 6 to 1 to private firms. I stated in my original memorandum that if there were additional ships it would mean an increase in the proportion to private firms. I stress that figure—nearly 6 to 1 are built by private firms as against government yards, and that includes the two capital ships and the two aircraft carriers, which increases the proportion heavily in favour of the private firms.

But that does not complete the story of the contribution that private industry makes to naval construction—not by any means—because nearly all the materials of which dockyard ships are built come from private firms; they come to the dockyard where they are fitted together into the ships. I am going to read a passage from paragraph 13 of my evidence to explain how this came out in terms of money in 1935. I cannot give you those figures for 1936, but this explains in terms of money how the private firms and the dockyards are affected.

"In terms of money the position is this. During the financial year 1935 the value of work on dockyard-built ships is estimated to be £2,165,902, and on contract-built ships £2,147,414,

a total of £10,343,316. But in the case of the dockyard-built ships much of this money represents the value of the components mentioned above or of materials drawn from dockyard stocks. Conversely some of the components of the contract-built ships are supplied from the dockyards. A fair statement of the position may be taken to be that of the £10,343,000 to be spent on warship building in 1935, only about £885,500 will be spent in salaries and wages in the Royal dockyards or at Headquarters.

These figures do not include the cost of the armaments proper of the ships, their guns, ammunition, torpedoes, etc. The provision for this armament in 1935 is £1,372,000, and here again only a comparatively small part is spent in salaries and wages in Government naval or military establishments."

Now I come to the Army. The Army obtains many of its requirements from the Ordnance factories, and on the whole has less reliance on private firms than the Admiralty or the Air Ministry, though it is quite considerable. After the War the Army was able to live largely on stocks, and the orders to trade in those circumstances were relatively small, very largely experimental and developmental. The position has now changed, and larger orders are being given to the trade, especially for tanks and shells, and that, of course, is to meet the increase for the re-conditioning programme. The articles that the Army gets wholly or mainly from the trade are: gun forgings, heavy coast defence mountings, heavy armour-piercing projectiles, predictors, fire control instruments, searchlights, sound locators, tank engines, armour plate and gun shields, armoured car chassis, motor transport, machine guns and automatic guns, electric signalling lamps, heliographs, and signal and wireless telegraphy stores—so that the dependence on trade is pretty considerable.

The Air Force gets practically everything except a little armament, including torpedoes, from private trade. There are no government factories for the production of aircraft.

To summarise: with regard to the Navy a very large proportion indeed of its peace-time supplies comes from private industry; the Army less than the Navy, but quite considerable; and the Air Force nearly 100 per cent.

I pass on to the question of what a change of system would involve, and I begin with the preliminary observation that the abandonment of private manufacture would involve so vast a dislocation as to be unthinkable during the present re-conditioning of the services. It might easily involve a national disaster of the first magnitude if we were caught by war in the transition stage. For the Navy, if you were to nationalise, it would involve a huge expansion of the dockyards, whose present capacity, as I have shown, is totally insufficient, and has been totally insufficient even for the relatively modest programmes up to a year or two ago, and are totally inadequate for the present programme; or else it would mean taking over the private yards. If you took over the private yards you would have to take over a very large number if the private firms were not to be allowed to go on building warships. My point is this: that peace preparations must involve with the Navy a capacity for expansion in war; and later I am going to show you the gigantic expansion that there was in the last war. Now, that capacity is at present provided by the private firms. The private firms would be of no use in time of war for building complicated things like destroyers or submarines unless they got their experience in time of peace. If you are to have your state establishments up to a war scale there will never be sufficient work for them in time of peace unless you are going to enter the market for building merchant ships. If they are not up to war scale, then there is insufficient potential in time of war. Then, of course, apart from the dockyards, the Admiralty, if private manufacture were nationalised, would have

* The witness handed in a revise of Table I, see Appendix B, p. 648.

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to take over a great many other factories, or the government would have to take over factories—armour, gun mountings, and all the rest of it, according to your definition. It would be very costly and very uneconomical. Of course, the private ship-building firms that build for the Navy have two great advantages; they do a good deal of commercial work as well, most of them. With regard to Vickers, for instance, I think I saw in the papers that they had just got an order for two new liners; and then I give in my evidence the instance of the "Queen Mary"—she was built on one ship, and on another ship close by there was a sloop building. That shows how they are mixed up. A merchant ship may be followed on a building slip by a warship. After launching, the ships, whether they are merchant ships or warships, are completed in the stream. It would be a very difficult job taking them over, so I am assured. Certainly, as I have said, it would be very costly and very uneconomical.

Now let me come to the Army. As I pointed out, there is less dependence, and though at first sight the abolition of private manufacture and monopoly might appear less impracticable for the Army from the point of view of peace supplies—which is all I am on just now—you would have to increase your factories to make good the supplies which the ordnance factories cannot make, and you would have to manufacture that formidable list of articles, weapons, and so forth, and apparatus, which at present are entirely, or almost entirely, made by the trade. That would depend, of course, to some extent on what your definition is, but the main objection from the point of view of the Army is once more this point that peace preparations include preparations for war expansion. For the Army you have to envisage a 50-fold expansion—it is terrific—and that means that you have to have behind your ordinary source of supply a reserve source of supply, to which I shall come later, and which is dealt with in the last White Paper on Defence. The policy is to develop for emergency firms that do not ordinarily manufacture war material, and only by some such scheme can we get a war scale of output. Well, if you cannot give an order in time of peace because private manufacture is prohibited, you cannot have that plan at all. I think that really rules out nationalisation of private industry for the Army—not so much from the point of view of peace supplies, but from the point of view of peace preparations. You cannot maintain state establishments in peace on a footing sufficient for war needs; you cannot provide that 50-fold power of expansion. You must rely on mobilised industry in war, and your mobilised industry will not be efficient unless orders are placed in time of peace.

Now, what does prohibition of private manufacture mean for the Air Force? Well, it means either taking over the greater part of the existing private industry or starting up a new system of state factories. Once more I return to the same point—that it is unthinkable during the present expansion of the Air Force. The Air Force is the one force which is expanding as distinct from re-conditioning, and nationalisation would be open to the strongest objections, many of which I shall develop later.

I am coming now to one of the points—still on peace supplies—which affects this question of the practicability and desirability of abolishing the industry and setting up instead a state monopoly, and that is the question of the fluctuations which occur in expenditure—peace expenditure—if you would not mind turning to Appendices II and III to my statement.* Appendix II gives the fluctuations of naval and military expenditure over a long term of pre-war years. You will find that for the Navy, in the last six years before the War, it went up from 35 million pounds in 1909 to 61 million pounds in 1914—I just give that as an illustration—or if you take 1909 the increase was from 32 million pounds in that year to 51 million pounds in 1914

(19 million pounds). Well, that is a very big fluctuation. The Army was less—only about two million pounds. Now the post-war figures: I have had Appendix III brought up to date and added figures for the year 1936 (this is, of course, estimated).* For the Navy the expenditure, drawn on the same scale as the earlier figures, is 60·2 million pounds; for the Army it is 40·8 millions; for the Air Force it is 37·8 million pounds; and the total is 138·8 million pounds. The point is this: that from 1932 to 1936 the fluctuation upwards is as follows: The Navy, 19 millions; the Army, 13 millions; the Air Force, 21·5 millions. That is a fluctuation of expenditure of 53·5 millions in those years 1932 to 1936, and that is a very heavy thing to throw on to a national system of manufacture. You could spread it in the trade, but it would be a very serious business to throw that on to a national system.

Now, you may ask what are the reasons for these fluctuations. Of course, British armaments must depend upon what the international situation is. If the international situation becomes more serious, then armaments increase, and they cannot be wholly disconnected from the armaments of other powers. That is one reason—the political reason. The second reason which may affect armaments is technical development. A new weapon comes in; of course, that increases expenditure. One always hopes that it will reduce it somewhere else, but in fact it generally tends to add to the expenditure. Take the air arm: that has added to the expenditure of all nations very much. Then, when you get these technical developments you get counter developments, and that involves fresh expenditure—anti-aircraft or anti-submarine, or whatever it may be. These are the two main reasons, I think.

Of course, in theory limitation of armament schemes would appear as though they ought to avoid these fluctuations, but in practice that is not the case. There is room for a good deal of fluctuation within a disarmament treaty, and nations do not always build up to their maximum all the time. One illustration I give is our own fluctuations for the Navy, all within a disarmament treaty. Again, in a table in paragraph 28, you will see the United States of America and Japan; they, with us, were the leading nations in the Washington and London Naval Treaties. You see that the United States of America, prior to 1933-34, had an expenditure of about 360 million dollars annually. That went up to 492 million dollars in 1934-35, including N.I.R.A. funds, and in 1935-36 the projected figure was 580 million dollars—it had gone up from 360 million to 580 million in two years. Then Japan, taking ordinary and extraordinary expenditure together, went up from 227 million yen in 1931 to 306 million yen in 1932-33, and in 1933-34 to 403 million yen.

4321. Sir Thomas Allen: Is not that all relative? If we go up, naturally the United States of America and Japan go up, too.

Sir Maurice Hanky: I would rather put it the other way: that if they go up we go up; but it is relative, and I am not making that point; I am only making the point here that these disarmament conventions do not prevent fluctuations. They do check total expenditure, but there is sufficient room within the disarmament conventions for a good deal of fluctuation.

4322. Sir Thomas Allen: My point was that it was cause and effect; that is all.

Sir Maurice Hanky: It depends on which is the cause and which is the effect, does it not? And, besides, disarmament conventions include let-out clauses—I do not think they have ever been invoked, but, still, they are there in case the situation changes; and that might lead to fluctuations.

I come now on to the question of why (as seems to be the case) private industry is better adapted than government industry to deal with these fluctua-

* The figures in paragraph 24 of the First Memorandum of Evidence, pages 616-1, and in Appendix III, on p. 633 have been amended accordingly.

* See p. 623.

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tions in peace expenditure. If you turn to Appendix IV to my statement,* and you study it sufficiently closely, you will see that, broadly speaking, the bulk of the fluctuation falls on trade. Now, that is very remarkable. It applies, with some exceptions, right through, but if you take those late years when we have just begun re-conditioning—we have only just begun it—if you take the latest figures they are very remarkable. Here, again, I have brought the tables up-to-date.† In 1936 the total naval expenditure is estimated at £7,511,000. Of that, £2,700,000 will be spent in government factories, and £4,811,000 will be spent with the trade. Taking the Navy, in 1932 £2,000,000 was spent on armaments, of which 62 per cent. was spent with private manufacture. In 1935, when 7½ million pounds is estimated as the expenditure on armaments, 64 per cent. goes to private manufacture. Naturally, if you increase your armaments, private manufacture would expect an absolute increase in its orders, but in fact it gets more than an absolute increase; it gets a great percentage increase. You will find in these tables that when armaments rise private manufacture gets a larger percentage of the expenditure, and when they fall you get the reverse—they get a smaller percentage. In other words, the government establishments do in practice keep a relatively even load, and the fluctuation goes in the main to the private firms.

You will find that the Army figures are just the same. In 1932, with a low expenditure, 37 per cent. went to the trade; in 1936, when £6,000,000 is being spent on armaments, 71 per cent. goes to the trade; it is nearly double. That is much more remarkable than the naval figures.

I do not want to press this argument too far, because there are other reasons which do affect the placing of orders. There may be something which you require very much that is made by only certain firms, so the order has to be placed there; and some departments prefer to give more orders to the government establishments and less to the trade; but, still, broadly speaking, the rule seems to have worked out in practice that the fluctuations did go to the trade, and my opinion is that they must go to the trade.

Now, I suppose that the reasons for this are, first, that the trade has a commercial manufacture on quite a considerable scale and is able to keep its skilled men and a certain amount of machinery together, and it does seem to have greater elasticity, as it had in the War; and, secondly, that they get a certain number of armament orders from abroad which enable them to keep a certain amount of potential going, and they are able to utilise some of their machinery for commercial products. For instance, I give one or two rather interesting instances in paragraph 30. There is the case of a large vertical boring mill which was provided for armaments which one of the firms was using in the construction of a winding gear for, I suppose, mining purposes, in a Dominion; and then there was the very interesting use, for making part of the hydrogenation of coal plant at Billingham, of a forging plant which had been provided for heavy gun manufacture. I have seen those myself, and I inquired whether that was a fact and it was confirmed. Then, of course, there is the interchangeability on the building slips of merchant ships and warships, which I have already noted. The same principle applies to boilers and propelling machinery, civil and military aircraft, aircraft engines, and many other classes of work.

The reasons why government establishments are less elastic are, I think, first, that there are no commercial orders carried out on behalf of the government; second, that the government does not take orders for foreign armaments; and then, lastly, I think there is a Parliamentary difficulty. After the War, for instance, 95 per cent. of the state factories were scrapped; there was a great demand after the War, of course, for cutting down everything connected with the War, and 95 per cent. of the state

factories were scrapped. Now, I want to put this question: Can you imagine that, in the years from the year up to the beginning of our re-conditioning programme, any government could have come forward with a proposal to increase the government factories? I am assuming that after the War you had had government monopoly, and I ask the question: Can you imagine that any government could have come forward during those years, when the country was very strong for disarmament, when armaments were being cut down all the time—could a government have come forward and said: "Well, in 1935 the situation may change; we have got to lay down factories greatly in excess of our needs against that time when we may have to meet a great increase in expenditure"? I think it is unthinkable. Just think of the arguments that would have been put against it. It would have been said that the government's disarmament policy meant nothing; it was cutting down its armaments, but it was increasing its war potential. That would have been one side, and the other side would have said that, as the services were inadequate, the money ought to be spent on the first line and not on the second line. And supposing you had had government monopoly and you had not put down that extra potential, and we had arrived at the year 1934 and we had suddenly discovered that we wanted an enormous increase in armaments—an increase, mark you, which by the present time amounted to those very large figures which I gave you—the Navy going up from two million pounds on armaments to 7½ million, the Army going up from 1½ million in 1932 to 6½ million in 1936—the state could not have met the fluctuation even in time of peace. As it is, it requires all the resources of the country to meet these programmes. If you had shut down private industry we would have been in the most dreadful hole; I do not like to think of it.

Now I come to a different aspect altogether—still on peace supply—and that is inventions, research, design and experiment. Now, all the services are very strong on the point that private industry is of great importance from this point of view. I think it always has been—Galileo, in one of his treatises, pays a tribute to the work of the Florence Arsenal in scientific development. There is no doubt that all the Defence Departments do derive benefit from the work in these respects of private firms. The Air Ministry tell me that they cannot over-stress the importance of competing design staffs in the aircraft industry, which would not be retained under state monopoly. The War Office depend on private industry for the design of machine guns, automatic guns, tanks, and all precision instruments. In the case of tanks, of course, the utilisation of the latest industrial methods in suspension and transmission gearing, and so forth, is very valuable. Then the wider researches of some firms like Firth's, Hadfield's, the I.C.I., and so on, not strictly for service purposes but for other purposes, are invaluable from the point of view of armaments sometimes. Many of the Chief Constructors of the Navy have widened their experience by serving with armament firms.

Since I put in my first memorandum of evidence you have heard, of course, a good deal of evidence on this subject from other witnesses, and some of them think that national and international competition in research is not of much value to anyone. I do not agree; I think that competition, whether it is national or international, is of great value to the state. I will give you two recent examples of where foreign firms have produced weapons that are of value to us. There is the Bren gun; that is a new machine gun that has been taken up by the Army. That is actually a Czechoslovak gun, I think; it is, of course, manufactured here, but it is of Czechoslovak design, and it won the competition that the War Office had. Then there is another gun called the Browning machine gun, which is an American gun and which, I think, Vickers manufacture under licence, and which the Air Force uses. There are two cases, and quite recent cases.

* See p. 524.

† The figures in Appendix IV, on pp. 524-5 have been amended accordingly.

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[Continued.]

I want here, if I may, to read a passage from my written evidence, sub-paragraph (3) of paragraph 39:

"Illustrations of the value of private industry from the point of view of competition are also furnished by the experiences of the Air Ministry in connection with the design of aircraft. For example, the Fox machine, which Mr. Fairey introduced into this country from America about ten years ago and which caused a revolution in British day-bomber policy, was a private design which proved to be an advance upon anything we then had."

—that, you will notice, is another foreign example; the next one is a British one—

"The most recent example of the kind is the Bristol 142 ('Britain First'), which was built as a civil machine to Lord Rothermere's order but has been adopted as a medium bomber for the Royal Air Force. There have also been instances in which the Air Ministry has rejected a firm's design, tendered to an official specification, but the firm has nevertheless built the machine to its own design, submitted it for competition, and obtained a contract. Examples are the Nimrod, which Hawker entered for a competition with machines built to the official approved design, and the Wellesley, which Vickers built as a private venture in another competition."

I want to stress the next sentence:

"Whatever working arrangements may be made on the business side between firms manufacturing armaments, this does not extend (in many cases, at any rate) to invention, research, design and experiment, and in this respect there is a lively competition between private firms, which is by no means confined to the manufacture of armaments."

I think you have been told that there is no competition between private firms, so I ascertained the above facts about competition in research. That is the first part of my case about design and experiment, but I now want to hand in a list* of more than 100 inventions which have been produced by private firms, as part of my reply to those who say that the private firms are no use from the point of view of invention and development.

4323. *Dome Racked Crowdy*: Have you a list, too, of the inventions that have not come from private firms?

Sir Maurice Hanky: I have not a list. It is a very long list, but I am coming on now to that side of it. Before I come to that, there is just one detail; I do not think I will spend time on that list, because you can study it for yourselves. It is a very important list. I come now to this point: There has been an allegation that private manufacture endangers secrecy, and there were three examples given; there was the Hadfield shell, the Gauntlet aeroplane, and the Whitehead torpedo. I think the allegation in each of those cases was that national secrets had been given away. I have inquired from the government departments concerned with these matters, and they tell me that in each case the department decided that the maintenance of secrecy was not required in the public interest. I think you are going to get evidence from the departments on secrecy, so I will not spend more time on it; but I should like to make one point, and that is that if you had a government monopoly you would still have this problem of secrecy, because under Article 8 of the Covenant you would have to take your share, I take it, in supplying the needs of those countries that are not able to supply themselves; whenever they came to you with orders for aircraft, or shells, or whatever it might be, you would be up against that problem at once. Are we going to give them our interest or are we going to give them obsolete stuff? You would have just the same problem as at present when the firms come to the government. In that case the government would

have to decide for itself. You do not get away from that particular difficulty.

Now I come to the comparisons with regard to research between government manufacture and private manufacture, I am taking research, design, development, and invention all together under this head. I do not think that these comparisons are of much value. We want both. You get the advantage of different environments; every man does not do his best in a government department; some work better in a government department, some in a private firm, some in a university, some in a research laboratory. In the wrong environment genius may shrivel up; you want all the research and invention in different environments that you can get, surely. Inventors are often very temperamental people. You might as well try and nationalise music or art as to try to nationalise invention. What I want to insist on is co-operation—you want co-operation between the government departments and co-operation between firms under all these heads—the sort of co-operation that you had between I.C.I. and the government in the development of hydrogenation. I do not think you could have done that by the government alone as quickly, and I do not think you could have done it by private research alone as quickly. It is a case of co-operation.

Then, before leaving research and design, I draw attention to the fact that the government's general policy has for a long time been to develop research on private lines as well as on government lines. I have given you a memorandum on that in Appendix VII to my statement.* I cannot stop on it; time is not long enough; but that memorandum deals with all the main forms of government research, scientific and industrial research, medical research and agricultural research; and you will find there that the whole principle is not only to have your very important government establishments which do the most magnificent work, but also to develop it wherever research can be developed, and it would be a departure from that principle if all the service research was concentrated in one hand. The results have been very good, I think, of the government's policy on research, and there is no doubt that within the services there have been a number of very valuable inventions made. I have given you a list of 100 from the trade. The more research we can get and the more widely it is spread the better.

Then I will leave that aspect and pass on to the effect—I am still on peace time supply—of the change to government monopoly on civilian industry. Now, of course, I am not an expert on this, and I am only putting forward a *prima facie* case for investigation. I do know, having talked to some industrialists, that some of them do attach importance to the work they do for Imperial Defence as aiding civilian industry, but they alone could advise you as to whether it is correct to say that that is a factor of any importance. The *prima facie* case appears to be that it improves the financial position of the establishments and helps them to carry their overhead charges by receiving large orders for arms and munitions of war. For instance, in 1914 there were 110 warships under construction by British firms, of which 22 were for foreign account. Among these 110 warships were 21 capital ships. Well, that must have been a very valuable technical experience. By spreading overhead charges I imagine, *prima facie*, that firms would be able to quote lower prices for government work; it also would enable them to retain skilled labour and acquire machinery. They may improve technique in other industries as well as shipbuilding—owing to the high standard of government work, and the rigid inspection. I include some extracts from a very interesting article by Lord Weir in the Silver Jubilee number of "Engineering," where he talks of the very valuable lessons gained by industry from war experience. The Air Ministry gave me something here on this aspect from the air point of view. This

* See Appendix C, p. 646.

* See p. 639.

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table which I will hand in* gives the exports from the United Kingdom of aircraft, engines and spare parts in the years 1930 to 1934. So far as the Air Ministry can estimate, roughly 25 per cent. of the total value might be regarded as relating to civil aircraft and engines. It should also be noted that about 25 per cent. of the exports are to Dominions and British Dependencies. The present value of the trade is not high, but this is not surprising in view of the newness of aviation in general and does not mean that the trade has not a promising future. Whether the civil trade is likely to develop in proportion to the military trade is a matter for conjecture, but there is no doubt that the prestige acquired by our firms in military types reacts favourably on civil sales. For example, the Polish Government, which has bought Bristol engines, for its military aircraft for some years, has now adopted them for its civil airlines in American airframes. In addition countries which buy the military version of the De Havilland "Dragon" aircraft also buy the civil version. The sale abroad of British products of such high quality and efficiency as have been attained by our military aircraft and engines is bound to create goodwill for British products of aeronautical material for civil use. Our military types are admittedly in the very first rank. Hawker aircraft have in fact been supplied to the Danish, Greek, Estonian, Portuguese, Norwegian, Swedish and Yugo-Slavian services, while Fairley machines have been supplied to Brazil, Argentina, Chile, Peru and Greece. These military aircraft, with British engines, must predispose the countries which use and know them to favour British civil aircraft and engines as well, so that our aircraft and engine constructors are, as it were, pegging out claims in fields which may yield a rich return at a future date when aviation reaches its full development. It would be most unfortunate if anything were done to interfere with the supply of British service aircraft to foreign countries and thus to handicap us in markets which may be of very great importance in the future. As a layman it seems to me there would be a loss of efficiency. Perhaps it is hardly necessary to say that I hope no one would think that I am advocating armaments for the sake of stimulating industry, but if armaments are going to be provided anyhow and orders to private firms do, in fact, stimulate industry then it is just an argument which I think is worth your consideration for continuing the system, or, at any rate, for not abolishing the system.

To summarise the maintenance of private manufacture is very desirable from all aspects on peace supply; I might have said peace preparation; it is necessary for meeting fluctuations; it is most important for research development and experiment, and it is probably of some value to civilian industry. It is completely indispensable from the point of view of peace preparation for war supply. My answer, therefore, to the first part of the terms of reference, so far as peace supply is concerned, is that the abolition of private manufacture is both undesirable and impracticable; never more so than at the present time when the reconditioning of the forces is in progress.

Now I pass on to practicability and desirability in war where I get to paragraph 47 of my statement. I am not going to read from it yet, but that is where I am. The experience of the War showed the necessity for great schemes of what you might call industrial mobilisation for purposes of supply under modern conditions. Every great nation has taken up this question, and is preparing some such scheme. It is very important, therefore, that we should not do anything which would decrease our war potential, and the question really that we have to consider is whether we should be better off or worse off by substituting state monopoly for the present system of private industry. Now, naturally the experience of the Great War is very important in this respect, and a tremendous controversy has arisen about it,

and anticipating that you would have a good deal of evidence on that subject I set to work when I came home from a tour to the Dominions more than a year ago, to work out from the official histories what the facts were, and those you will find set forth in Appendix V to my statement.* It is a curious thing that all these allegations with regard to private firms were not made at the time. I do not remember allegations at the time that private firms had failed. There was the allegation that industry had failed, and there were tremendous attacks on the War Office and the government, but I do not remember that they were on the private firms. This tremendous drive against private manufacture seems to have cropped up, strange to say, with this case. Take General von Donop, he and the late much regretted Sir Francis Bingham came as unexpected allies to my side of the matter. I do not know whether the Royal Commission have realised the significance of their evidence. General von Donop was tremendously attacked. Most people would have been embittered by the attacks that he has had to put up with. What could have been easier than to turn the thing on to the private firms? But you have seen him. You know he is not that sort of man, and he never blamed the private firms. I have read what he wrote at the time. In the War he never blamed the private firms, and he went out of his way—and General Bingham, who was his assistant, went out of his way—to come down here and tell you that the private firms were not to blame, and I think that is very significant.

Now I shall turn to my summary of Appendix V which is contained in paragraphs 53 to 60. Appendix V gives a very long story about it. There is no dispute as to the grave shortage of shells which occurred in the spring of 1915 and thereafter. You will find the figures in my paper, and you have had other figures. There is no dispute about that. There is no dispute that the private firms were unable to execute the orders which had been placed with them. I think where you get on to more controversial ground is as to whether the firms were, or were not, to blame. I think there is room for doubt as to whether you can blame the firms for accepting these orders. Remember what the position was. The ordnance factories had refused to take any more orders. It is quite true they fulfilled within 10 per cent. or so what they undertook to do, but they would not undertake any more. What they would undertake was limited. Some orders had been placed abroad and could not be counted upon. There was absolutely no other source to which the government could at that moment turn, and, of course, there is no doubt they pressed these firms pretty hard. The firms could only do their best and I do not think they ever concealed their misgivings; at least I can recall one case, at any rate, where they did not, and it certainly very soon began to become clear that they were going to fail.

I pass to another point. Even at the time of their failure the achievement of the firms was rather remarkable. You will see from Table III in Appendix V that, for the four types of ordnance on the left, I give the stocks, that is the reserves before the War; the total stocks at the outbreak of war; then I give the deliveries by the home trade up to the end of May. The deliveries up to that time were not very far short of the total stocks which the government had laid in. But if you turn to the next table, Table IV, that is very much more interesting, taken in conjunction with Table V, because from these two tables this follows: that the output of private manufacture up to May, 1915 (the worst time) was more than two and a half times that of the ordnance factories notwithstanding that for the five years before the War the orders by the government for gun ammunition to the trade had only been one-third of the orders to the Royal Ordnance Factories. Well, that does rather tend to

* See Appendix D, p. 647.

* See p. 625.

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illustrate that the trade had a good deal more elasticity than the Ordnance factories. The Ordnance factories, of course, had a great deal of other work to do; they had their repair work, and so on; but, even at that time, I suggest that was a considerable accomplishment. Then in 1914 private manufacture produced two-thirds, and in 1915 three-quarters of the total output of empty shells at home. The Royal Ordnance Factories supplied but a fraction of our needs. I think in any argument on private industry versus government monopoly these figures are not without importance.

Now the next point I make is that the causes of the failure of the firms were very largely, almost entirely, beyond their control. It is generally said that there were three main causes; the Official History puts three: labour, lack of machines and the failure of sub-contractors. Take labour. What was the main cause of the upset of labour? Undoubtedly it was that the Government went on recruiting skilled men for the Army. I do not say labour would not have been very difficult without that, but that certainly was a very important factor and very upsetting and cramping to the armament firms. That is a matter that they could not change. They made their representations. Of course they got assistance later from the Government, but it was not adequate, and they did not get any assistance in that at the beginning, I think. Then, of course, there was the question of the replacement of labour. We to-day certainly should regard labour problems in war as a Government problem much more than a problem for the private firms. Then next is lack of machines, delay in home and American supplies. Well, I do not think the firms could have done much with regard to that. I do not think you could blame them if they could not get their machines, especially from America, in time. As to sub-contractors and the cause of their failure, it was similar to that of the armament firms. One of the witnesses told you the other day that the Government were never told of the difficulties of the firms, but that is really not the case, and the reason they started up things like bulges in September, 1914, was because they were hearing from the armament firms of their difficulties. I myself heard as early as 3rd September of difficulties. I passed them on, of course. If you read the Official History you will see that the failure certainly was beginning to become pretty clear by November and December. Undoubtedly the Government knew.

Let us take now the indirect causes, if they really are indirect, which I think are the more important. In the first place there was a vast programme which was undertaken for the Navy. Nearly 1,000 new ships were built in the War for the Navy, and a tremendous lot of ships were put in hand at the very beginning. I could give you particulars of them, ship by ship. The Navy, of course, was our first line of defence; it was on the Navy that we relied to protect us against invasion and to protect our territory. It did protect us against invasion, and it did protect our territory, and it naturally had priority. That occupied a good deal of the industry's resources. You cannot blame the private industry for that. The next is the enormous scale on which we had to expand our armaments. All Governments miscalculated. The Germans and the French miscalculated their requirements with regard to the expenditure of ammunition, but whereas they only had to make up the difference between the new rate of expenditure and their calculated rate, plus whatever expansions they were making (which were considerable in the case of Germany) we had to make up an expansion from whatever it was—six divisions to 70 divisions—and that terrific expansion was a matter you cannot blame the trade for. The orders were infinitely larger than anything that had ever been anticipated. The next thing is that there was no plan for an expansion of the Army. It had not been anticipated, and no warning was given to the trade—absolutely no warning. That was not their

fault. Another difficulty was that when this expansion began Lord Kitchener could not decide at first—it was impossible for him to decide—how large the Army was to be, and the result was that as the decisions were taken to enlarge the Army so decisions had to be taken to place larger orders for war material. In all the early months of the War the trade really did not know what they were preparing for, nor where the limit was to be. The orders came in month after month, which must have made it very difficult for them, I think. I am not an expert, but I should think so. Another thing was the lack of experience in estimating for things on these gigantic scales. The Government had no experience, and the trade had no experience. I do not think you could blame them for that. Finally, the Government system of organisation was not good. In the early stages of the War there was rather a poor system of central control. It had not developed up to anything like what it was in the later stages of the War Committee and the War Cabinet. Above all there was no organisation for the control of supply by the Government. There was nothing like what we have to-day in the Committee of Imperial Defence—our Principal Supply Officers' Committee Organisation. There was nothing of that kind to enable the Government to put the firms in a good position to do their best. The critics of private manufacture have made the mistake of assuming, I think, that those who oppose its abolition would contemplate that at the outset of any future war there would be no more control than there was in the late War. I suppose the first lesson of the War is that Government organisation, both before and during the war, is absolutely essential if the best is to be got out either of Government establishments or regular contractors or reserve contractors. So far as private industry failed at the outset of the War it was due largely to the lack of general Government organisation. The creation of that organisation in the Ministry of Munitions was a very great factor in the later success of private manufacture to which I am now going to turn. No one can praise too highly the magnificent work which the Ministry of Munitions did. What they did was to enable private manufacture, supplemented, of course, by all sorts of other things, to produce very great results, to which I am now coming. The process of recovery is shown in the following figures: by September, 1915—that is still in the very bad time—only 42 per cent. of the orders to private firms had been fulfilled; by December, 1915, it was 52 per cent.; by March, 1916, 74 per cent.; and by June, 1916, 81 per cent. Now I am going to read you a little extract from the *History of the Ministry of Munitions*, which shows that even in those early days the firms, even though they miscalculated, did not do so badly in the light of later experience. Here is the extract: "The time needed for the creation of new capacity, though uniformly disappointing the expectation of those responsible, differed little in fact from that which the large experience of the Ministry of Munitions showed to be the normal time required for the development of bulk output from new sources of supply." "Firms had to set up new sources of supply, and although they may have estimated badly, at any rate, the working out of the thing was nearly as good as that of the Ministry of Munitions later on with its magnificent equipment, staff and experience. I do not think you can put too much blame on the private firms, if, in the chaotic conditions of those early days when they were totally inexperienced, they failed to exceed what was afterwards accomplished by the splendid Ministry of Munitions backed by all the resources of the State.

Up to now I have been mainly on 1915. Now I come to the achievements of private manufacture in the War as a whole as set forth in paragraph 58 of my first memorandum. For the Navy, a vast new fleet of nearly 1,000 ships; guns, 25,500 out of a total of 31,200; shells, 73,000 out of 162,000; the regular trade being easily the first source; machine guns, 230,840; rifles, nearly 2,000,000 out of nearly

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4,000,000; small arms ammunition, nearly all; aero-planes and seaplanes, nearly 54,000 compared with 1,200 produced by the government; aero engines, 41,000 out of 58,000, the balance being mainly obtained from abroad. In the *History of the Ministry of Munitions* the private firms are described as "the aristocracy of shell manufacture." They raised their output during the War more than forty-fold. The national projectile factories were the second largest source of supply for shells, I think. They were laid out and maintained, on behalf of the Ministry of Munitions, by private firms—a great contribution. Then as regards aircraft, I draw attention to annex III to Appendix V to my statement, where the official air historian describes the predominance of private manufacture in that branch, and how the firms gave better results when state interference was reduced. I will quote what General Edmonds, the official historian of the War on the military side, to whom I wrote to ask his view, said. He began his letter in this way: "The private armament firms saved the situation in 1914-1918."

I was thinking over this last night, and I think many of the witnesses have made rather a serious mistake in interpreting war experience. What they say in effect is that private manufacture failed in the early days and that the Ministry of Munitions succeeded; therefore you must have government manufacture. That argument is a complete non sequitur. The real work of the Ministry of Munitions was in controlling the whole organisation and giving the right conditions in which private manufacture could give its best results. They did not supersede; they did not take over the firms in the sense of displacing management, and so on. What they did do was to exercise control and thereby enable private manufacture and government manufacture and the new forms of manufacture that they set up all over the country to do their best, to get the best results. This was a magnificent work of organisation, the importance of which cannot possibly be over-rated—the work of Mr. Lloyd George and the galaxy of talent that he drew around him. I cannot see that that is a case for abolishing private manufacture and setting up nothing but government state factories. On the very face of it the argument seems to me entirely a false one. You had control of shipping. You do not for that reason nationalise all the firms that run the ships. You had control of food, or a good deal of food, but you do not, therefore, nationalise the butchers and the grocers, so why should you want to nationalise the private arms industry from this point of view on which I am now? There are other arguments, I know, which I will deal with on another occasion. The moral I draw is that adequate output cannot be accomplished either by the government alone or by private firms alone. Once more I come back to it; we need co-operation; the government to organise the country, the private firms, with their greater elasticity, to reinforce the ordinance factories and give us a good start pending the inevitably slower progress of national industrial organisation.

Now I come to sources of supply in a future conflict. Of course, if my argument is right that private manufacture was very important in 1914-1918, so it will be equally important in any future emergency. Perhaps I ought to add here that, since I wrote the evidence I have submitted to you, the White Paper of 1935 has come out and has developed this aspect a good deal. I was really rather in a difficulty because the government's decisions had not been taken; but still, broadly speaking, the principles that I set out hold good. There are five sources of supply; first, the stocks accumulated in peace; second, those purchased from abroad; third, government establishments expanded from their nucleus; fourth, normal contractors, and, fifth, the adaptation of civilian factories. I will take these briefly in order. The stocks, of course, must be

large enough to tide us over until the other sources of output can meet our needs. There are limitations to the amount of stocks you can have. There is the expense; then, of course, accommodation and maintenance, wastage, and obsolescence, and small turnover, in peace.

I come now to purchases from abroad. They were critically important in the Great War, but to-day it would perhaps be unwise to count on them too confidently. Nevertheless, they are very important if they can be obtained, because supply from abroad is one of the great and supreme advantages of sea power on which our Imperial Defence rests. Nothing should be done to close up this important source of supply. It is a question to which I come a little later.

Next we have government establishments. The War showed that their capacity for expansion, though considerable, was totally insufficient. Their powers, as I have said, are not sufficient for peace fluctuations, much less for war fluctuations. To maintain them on a scale to meet war needs, or even to be expandable to war needs, is out of the question.

Next we get private industry—that is, the normal contractors with whom we are concerned. As I have already pointed out, they have certain advantages—commercial activities and foreign orders—which give them greater elasticity to enable them to get machinery and keep their skilled labour together, the higher technical staffs, and so on. They, of course, were a good deal reduced after the War, but they are expanding under the stimulus of larger orders. It is desirable to increase the number of private contractors from the point of view of Imperial Defence, even if they devote only a fraction of their capacity to munitions work.

That brings me to the last category, which is the adaptation of civilian factories. The policy of the government in that respect is contained in paragraphs 51 to 54 of the White Paper, to which reference has been made. I had intended to read them, but I think I will not. Of course, the most serious difficulty about the adaptation of civilian factories is that there is bound to be a considerable time lag. You can reduce it by control of your war effort in general and by proper control of supply; by the organisation of man power; avoiding indiscriminate enlistment of skilled labour; the organisation of raw materials; the organisation of industry; the advanced preparation of drawings, blue prints and process manuals; notifying industry of what is expected of it; control of profits; labour co-operation; the provision of special machinery, jigs, gauges, etc.; but, however far you carry prior organisation, there will still be a certain amount of time before you can reach full output. In a word, the organisation of civil industry, though vitally essential, is no substitute for private firms regularly engaged on armaments. On the outbreak of war, and until civilian industry can reach the stage of adequate output, the normal contractors are the only source to which we can turn as a "going concern" to supplement the state establishments and the supplies accumulated in peace.

I reach this conclusion on war and supplies in war:

"In the extraordinarily difficult business of war supply it is vital that the government should have a free hand to organise industry in time of peace, and not be handicapped by the impossible provision that orders are not to be placed with private firms until after the outbreak of war."

It always comes back to that. My view is that private industry, which I have shown earlier to be both desirable and essential from the point of view of peace supply, is absolutely essential in war.

I come now to trade in arms. From what has been said on "war potential" it is clear that the larger our trade in arms with foreign countries the better from the point of view of Imperial Defence, which

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is the particular point of view with which I am dealing at this moment. Here I think I ought to say something on a statement which is very frequently made: that the United Kingdom is the largest exporter of war material.

4324. *Chairman*: We have been given the figure, I think, of about £4,000,000 worth a year?

Sir Maurice Hankey: As the amount?

4325. *Chairman*: Yes. I do not know whether that corresponds with your figure.

Sir Maurice Hankey: There are some figures in these tables.* I am really not quite sure; I do not carry them in my head. Mine are taken from the League of Nations Year Book. When the League of Nations statistics for 1934 were published it was broadcast and given wide publicity in the press that the United Kingdom exported more arms than any other country, and I think that has been repeated in evidence before the Royal Commission. Within recent years the statement is only correct if are included in the United Kingdom totals exports to the Dominions, India, and the Colonies, as in fact is done on page 196 of the League of Nations Statistical Year Book. Omitting the Dominions, India, and the Colonies, we fall below Czechoslovakia and France, and very nearly below Sweden, even on published figures which include industrial explosives. That is why I want to enlighten the Royal Commission on this.

4326. *Secretary*: Do these figures include capital ships?

Sir Maurice Hankey: No; armaments, but not ships.

4327. *Chairman*: Czechoslovakia has a government factory, has it not?

Sir Maurice Hankey: No; that would be Skoda's largely, I suppose.

4328. *Chairman*: I thought that was a government factory.

Sir Maurice Hankey: No; it is a private firm. The facts are set forth in Tables A, B and C, which I have handed in, which are based on page 196 of the League of Nations Statistical Year Book giving the trade in arms and ammunition for 1934, but have been corrected so as to omit the exports to the Dominions and Colonies. I would like you to turn first to Table C.

4329. *Chairman*: Do you say they have been corrected? Is the correction shown on Table A?

Sir Maurice Hankey: No; it is shown on Table B, but not on Table A. If you will turn to Table C, I have put in italics the United Kingdom's percentage. You will find that in 1929, 1930 and 1931 we occupied the first place. In 1932, when you see the figure is 21.9 per cent., we were second; France with 29.4 was first. In 1933 France was still first and we were still second. In 1934 Czechoslovakia had jumped up to the top place with 25 per cent. of the world's exports; France was 21 per cent.; we had dropped to 11 per cent.; and Sweden was a close runner-up with 10.8 per cent. As a matter of fact, however, the percentage of the United Kingdom is almost certainly less than that shown in Table C. There are two reasons for that. For the first reason I must refer you to Table A, which gives in some detail the exports from the United Kingdom to foreign countries during 1933 and 1934. Now, Table A divides itself into two parts. The first part down to "S.A.A.;" loaded and empty cases" consists of *bona fide* war material, practically nothing except sporting guns included; otherwise, for the most part it is war material. From that on to the end—that is the explosives category—it includes a large amount of explosives for civilian purposes. As a matter of fact, the exports of war material—that is in the first category down to "S.A.A.;"—have fallen from £1,633,700 in 1933 to £284,800 in 1934; they have

fallen by about half; whereas the category coming below, which includes a large proportion of civilian explosives for mining, I suppose, and that sort of thing, has increased from £377,500 to £429,800. In other words, the armaments exports have fallen off rather more heavily than that 11 per cent. would show.

4330. *Mr. Spender*: May I ask for one explanation with regard to that figure of 28 per cent. for 1931, in Table C, which I imagine is the origin of the common assertion that British exports are 30 per cent.? Is that the corrected figure or not?

Sir Maurice Hankey: Yes, that is the corrected figure. It was true then.

4331. *Mr. Spender*: That is the commonly quoted figure?

Sir Maurice Hankey: Yes; but the 11 per cent. is probably rather lower for the reason I have given. Then there is another reason; for the second reason I must refer you to Table B. This table is extracted from the League of Nations Year Book, and shows the position of the United Kingdom in relation to foreign powers as regards published values of exports to foreign countries of ammunition and explosives, excluding sporting arms and ammunition; and it is from Table B that the percentages in Table C are calculated. Table B, however, is incomplete for comparative purposes, so far as a number of foreign powers are concerned, in addition to certain reserves which are mentioned in the League of Nations Year Book itself, which indicate that all the facts are not set out on the same basis for all the countries. I am informed that the following should be noted: that almost any cross-check of figures for exports and imports between the same countries will show discrepancies. There are no exports of war material from Japan shown, although Peru alone imported war material to the value of 283,000 gold dollars from Japan in 1933. All exports of arms from Germany and Austria are classified as sporting on page 201 of the Year Book, and are therefore omitted from Table B and C. There are probably other movements of arms and ammunition which escape statistical records in some countries. To sum up, our real share in the world's arms export trade is certainly considerably lower than the percentages here shown, both because the proportion of industrial explosives, etc., in the British totals is probably higher than in the case of other countries, and still more because our returns are more comprehensive than those of some foreign countries. Even on the figures as given, however, it has been shown that for the last three years the United Kingdom has not exported more arms than any other country, and for 1934 we only occupied the third position by a narrow margin.

4332. *Dame Rachel Crowdy*: Of course, exports to the Dominions would be shown as foreign countries, would they not, in any League returns?

Sir Maurice Hankey: Yes, where that is the case.

4333. *Dame Rachel Crowdy*: Owing to individual representation?

Sir Maurice Hankey: Yes, that is right. They are also shown for the Colonies.

4334. *Dame Rachel Crowdy*: The Crown Colonies?

Sir Maurice Hankey: Yes. I was on this trade in arms when, I am afraid, I made a digression; I think some one asked me about warships. A year ago, when I wrote my original memorandum of evidence, there were no warships for foreign account on order or under construction here. Since then things have picked up a bit in that respect; to-day there are 16 ships either under construction or on order—they are mainly destroyers or quite small ships. I have the particulars if you want them.

* Witness handed in three tables of figures, see Appendix E, pp. 647-8.

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[Continued.]

New aircraft. Since 1925 an important trade in aircraft has grown up; from 1930 to 1934 the proportion of export of aircraft engines and spare parts was from one-quarter to one-fifth of the total manufacture. For the moment the aircraft industry is very well occupied with some orders, but in the long run the loss of foreign orders for military aircraft which, as I have pointed out earlier stimulate civilian orders, would be very serious. Therefore the restriction of foreign trade would tend to impair our war potential and be very serious.

The next point I take is the moral aspect. I think this really ought to have belonged to my second memorandum of evidence, but I did not know where I was going when I wrote the first memorandum, and I did include that aspect. One objection is that British weapons and ammunition might be used against British forces. I think that is an objection which must arouse sympathy in any generous mind, but I think that when you come to it in practice you find that it is not a very serious one. Take the Great War; there can have been very few British weapons used against us in the Great War; none, I should think, by Germany; none, I should think, by Austria, and none, I should imagine, by Bulgaria. The case that is generally quoted is the case of the Dardanelles; people say that it is a horrible thing that British guns were used in the Dardanelles against the British forces. Now, let us get the facts first. The total number of guns in the Dardanelles is said to have been 234; of those 234 guns, 13 were British, a very small proportion; the remainder were mostly German. Now think what the construction of those guns meant to Germany; it gave them quite a good increase to their war potential and to their capacity of output; it gave them prestige to get more orders like that, and, we doubt, got them other orders of the same kind from other countries. What was their gain was our loss. We only got the benefit of 13; they got the benefit of 221. If those orders had come to this country we should have got increased war potential, increased skilled personnel, and increased experience; more machinery, jigs, gauges, etc., more prestige, and probably more orders. It might have become quite an important thing. If Turkey had been dependent on us for supplies instead of on Germany, it might have been a decisive factor in Turkey coming into the War for us instead of against us or remaining neutral. They were dependent on Germany.

4335. Sir Philip Gibbs: Politics come into it a good deal, do they not?

Sir Maurice Hankey: Of course, politics come into all these things. It is only one of many factors. I am not suggesting that it was a prime cause, but it was very likely a factor, I think. Supposing we had refused an order of that kind, our sailors and soldiers would not have been any better off, because the weapons would have been supplied anyhow. I was at the Dardanelles for four or five weeks myself, and I never heard any complaint at all about this. It was known, of course, but if we had not been shot at by that gun we would have been shot at by a gun provided by someone else. Another point is that when the attack failed on March 19th, 1915, one of the decisive elements in the case was as to whether the Turks had ammunition in their magazines or not. Well, I am not going to express any opinion on that, but a very strong case has been made out that the Turks had very little ammunition, and that we ought to have renewed the attack. If you read the *World Crisis* and some of Mr. Churchill's other writings you will see that case fully developed. But, at any rate, we should probably have known if we had made the 234 guns; we should have been in possession of the information, and the decision whether to renew the attack would perhaps have been taken and a great campaign would have been avoided.

Then there is another point. Supposing that before the War private industry had been abolished

internationally and a government monopoly had been set up, there would have been some provision corresponding to Article 8 of the Covenant to provide those countries which have not their own sources of supply. Well, Turkey would either have created their own source of supply, or, if they had not created it, they would have come to the other nations and said: "The defences of the Dardanelles are out of date; please carry out such-and-such an order"—and what a fine scramble there would have been for the order, too. When you come to the day of battle you might still have found yourselves up against your own guns.

Now I am nearing the end; I come to the international aspect, Part III of my memorandum. I again quote Article 8 and the due regard that must be had to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety. That is very important in considering the international aspect. The states referred to include most of the smaller states, but in the Great War the states that were not able to manufacture the munitions and implements of war for their safety included this country and its allies. That is sometimes forgotten. Take the case of the smaller powers first. The nineteenth century and the early years of the twentieth century have seen the liberation of large numbers of peoples in Europe and South America sometimes from oppression and tyranny, or even worse. Many new nations were brought into existence, often with the enthusiastic support of British Liberal sentiment—people like Lord John Russell, Gladstone, Palmerston, and others. Now, those nations, perhaps, could never have created, or, at any rate, they certainly could not have sustained themselves against their former rulers, unless they could have got the munitions for their defence and for the safeguarding of their independence, and I do not think they could have got them without private industry. Of course, you may say that those days have gone. Well, you can judge of that as well as I. Small nations in the past were armed largely with the cast-off and obsolete weapons of the larger powers. Nevertheless for warships of all kinds, for weapons resulting from new developments in war material, such as aviation, gas and gas masks, tanks and mechanised warfare, as well as for replacements, spare parts, fresh supplies of ammunition and such new material as they must have, private manufacture is the main source of supply. With regard to the small powers, therefore, some provision in accordance with Article 8 is as necessary as the day it was written.

You then come to the case of the larger powers. In the late war, as I mentioned, the great powers fighting for the defence of Europe's liberties became dependent on foreign supplies. I want to read a passage from Lord Grey's book *Twenty-five Years*; it is quoted in paragraph 94 of my statement:

"To return to the question of contraband, blockade of Germany was essential to the victory of the Allies, but the ill will of the United States meant their certain defeat. After Paris had been saved by the battle of the Marne, the Allies could do no more than hold their own against Germany, sometimes they did not even do that. Germany and Austria were self-supporting in the huge supply of munitions. The Allies soon became dependent for an adequate supply on the United States. If we quarrelled with the United States we could not get that supply. It was better, therefore, to carry on the war without blockade, if need be, than to incur a break with the United States about contraband and thereby deprive the Allies of the resources necessary to carry on the war at all with any chance of success. The object of diplomacy, therefore, was to secure the maximum of blockade without a rupture with the United States."

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[Continued.]

You see Lord Grey, with the perspective that comes from a lapse of time after the War, with full realisation of the decisive part that blockade had played in the War, attached even greater importance to the continuation of supplies. He was willing to sacrifice the one supreme advantage of sea power—blockade—to the other—supply—because he thought that loss of supplies meant defeat. When you think that the value of the supplies sent from America to the Allies by the end of 1916, just before they came into the War, was 782 million dollars, and when you remember that that all came from private industry, and that in addition we got quite a bit from other countries, it gives one to think. Supposing that some pre-War government had secured the abolition internationally of private manufacture, and we then had found the country with a government monopoly probably quite unequal to producing our needs, no private manufacture to turn to, and not being able to go abroad and order supplies from private firms abroad, just think what that would have meant. I wonder what public opinion would have said of the government that had done that thing, if the government had managed to persuade the powers internationally to abolish private manufacture. We owe our national existence and our liberty to-day partly to foreign private manufacture. From 1914 to 1918, without it, our sea power would have lost half its value, and we should have succumbed to a better-prepared enemy. With that example in their memories, I submit it is inconceivable that the Royal Commission could recommend a course such as the abolition of private industry internationally which would destroy one of the decisive advantages obtained by our historic system of defence; that is, sea superiority.

I now ask the question whether government manufacture and trade could replace private manufacturers internationally. If private manufacture were abolished, nations would have to rely either on their own resources or on other governments. I think it would be impossible for small governments, given the wider range of modern armaments, to supply their needs from their own resources. It would also, I suggest, be undesirable, because it would involve a vast expenditure all over the world on the creation of arsenals, dockyards, and manufacturing facilities. But the second course—that is, reliance on other governments—seems even more undesirable. Competition would arise even where there were orders being given; some country would be going to re-arm its artillery or re-build its fleet, and competition would arise between governments for those orders. Everyone would want the orders, first, to keep their skilled labour and plant efficient; second, to increase their war potential; third, to keep orders away from rival or unfriendly nations; fourth, to bring other nations into dependence upon them and so to secure political support; and fifth, to keep other nations out of the political orbit of dependence on unfriendly manufacturing nations. I do not say that all those things would operate at once, but they would all be factors that would be operating all over the place. To get these orders, I have no doubt that governments would offer to compete in price; there would be low prices, long-term contracts, financial accommodation in the form of loans or tariff concessions or transport rate concessions, and what not, and from such methods it is a short step to commercial treaties, promises of political support, or even alliances in return for orders. All that would be very bad in time of peace for international relations, and in war it would be unsatisfactory both

to belligerents and to neutrals. Belligerents would feel grave doubt as to their reliance on a supply. Under a system of universal government monopoly we could not have got supplies from the United States Government in the first three years of the War before they came in; we were able to get them from private manufacture, but we never could have got them from a government, and that is the trouble that belligerents would always be in. With regard to the smaller countries, there is a doubt as to whether there would not be all sorts of objections to the supply by governments, and they would go down for lack of supplies, which would be particularly the case with a non-manufacturing country which was at war with a manufacturing country. I am not sure that the situation is always very easy to-day under control, but it is certainly easier than any government monopoly.

So that from the international aspect my conclusions are: (1) abolition internationally of private manufacture bears very hardly on non-manufacturing nations; (2) it would be incredibly bad business for a power to encourage it which has always depended on sea power and which only twenty years ago, with its allies, was saved from disaster by foreign manufacture; (3) in peace a government monopoly would introduce a most undesirable element into international relations owing to competition that would grow up for orders from non-producing states; (4) there would be a large increase in the establishments of arms manufacture by government; (5) in war, if private manufacture were abolished, the position would be unsatisfactory to non-manufacturing belligerents whose supplies would be precarious; it would also be very uncomfortable for manufacturing nations. It seems to me that it gives us the worst of both worlds.

Therefore I come now to the final conclusion that from every point of view the abolition of private manufacture of arms and munitions in war and the substitution of government monopoly is to be deprecated—I should have said from the Imperial Defence point of view instead of from every point of view—in peace-time because government manufacture is not sufficiently elastic to meet the ordinary fluctuations of peace-time expenditure on arms, much less the vast expansion in war. Government establishments cannot, for practical and parliamentary reasons, achieve the same elasticity as private industry. Private industry is incomparably more elastic owing to commercial orders and foreign armaments orders. Peace-time preparation involves preparing your war potential—in other words, pre-organisation of civilian industry, by which alone war needs can be met. But you cannot organise civilian industry if you cannot place orders in peace, and that alone makes the whole proposal impossible. Abolition is also most undesirable owing to the importance of private industry for invention, research and development. Abolition might mean a serious loss of efficiency to private industry; at any rate, it is an element in the case. From the point of view of war supplies, abolition of private industry, for the reasons I have explained, is out of the question. Private industry was our main source of supply in the Great War, and to try and do without it in the future would be a gamble with the dice loaded against us. From both the national and international points of view, the adoption of abolition internationally is equally undesirable. Even if the alleged evil effects had been made out, it would be out of the question to abolish private manufacture to-day when we are actually engaged in a heavy re-conditioning of our forces. That is all.

Chairman: Thank you. I think it is time to adjourn now.

(Adjourned for a short time.)

On resuming:

4336. Chairman: I have very few questions that I want to ask you, Sir Maurice, and they are chiefly founded upon a passage in your evidence. More than

once I have noticed that you attach great importance to co-operation between the private firms and government manufacture. That is so, is it not?

Sir Maurice Hankey: Yes.

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[Continued.]

4337. *Chairman*: Then in another part of your evidence you call attention to the great fluctuations that there have been in the cost of armaments, and the loss has fallen on the private firms. That is so, is it not?

Sir Maurice Hankey: Is "loss" the right word?

4338. *Chairman*: They have suffered as the result of the diminution in the demand for armaments more than the Government?

Sir Maurice Hankey: Yes, I think that is so. On the other hand, of course, they gain more when the fluctuation is the other way.

4339. *Chairman*: Yes, but one of the witnesses who came before us used that as an argument against the continuation of the present practice, or the past practice; he said that it is very unfair, when there is a slump in the demand for armaments, that the whole loss should fall on the private firms if they are relied on as a port, and as an essential part, of the national defence organisation; and what I was going to ask was this: You attach so much importance, and very rightly, I think, to co-operation, but do you see any means by which what I have called the loss (and I think for this purpose may be called the loss) of the private firms might be minimised or mitigated? The position now is, is it not, that the Government maintain their own factories to satisfy normal requirements with a normal staff, and the private firms have to go without orders and have to suffer considerable losses. Is there any means by which that could be remedied, if it requires remedying?

Sir Maurice Hankey: Of course, the Government establishments also have to be cut down. I do not like to take a case like after the War, when 95 per cent. of the factories were scrapped; you are not thinking of those large fluctuations; you are thinking of the more normal fluctuations?

4340. *Chairman*: Yes.

Sir Maurice Hankey: I cannot recall any from my own experience where there has been what you might call a normal downwards fluctuation. I can recall after the South African War, for instance, that there was a great falling off; I think you would find that the Government establishments went down a great deal. I do not think you could say that the whole of the burden fell on to the trade, although it is true—and I have made the point in my evidence—that the Government does keep a more even load, perhaps, than it is possible to do in the trade. When you ask me if there is any way by which they can be eased, one hopes that the trade will be able to turn to other things to some extent—to foreign orders and to manufacturing civilian requirements. Take Vickers; did they make merchant ships, liners, and so on, before the War? They may have done; I do not remember; but they do turn to a greater extent, undoubtedly, to civilian work, so far as they can get it. The trouble is that there may be a slump after a war—after 1919 there was a slump in civilian work which coincided with the slump from every point of view in Government orders, so that the firms were very badly hit in that way. I cannot suggest anything beyond the firms turning to other production.

4341. *Chairman*: In paragraph 10 of your statement you say: "The essence of our system is that private firms should keep, in peace, a certain amount of plant in working order and at least a nucleus of skilled workers, thus ensuring a certain degree of immediate production in war." That was written, I suppose, before the 1936 White Paper?

Sir Maurice Hankey: Yes; it was written a year ago.

4342. *Chairman*: And there is a proposal under that White Paper to very largely increase the number of firms who would be in a position to manufacture munitions and arms?

Sir Maurice Hankey: Yes.

4343. *Chairman*: Are they to be supplied with orders?

Sir Maurice Hankey: Yes, they will get orders. It so happens that we are reconditioning the services

at this moment, so it is a very convenient arrangement that we can at one and the same time place orders for the re-conditioning and build up a war potential; so that instead of only giving what you might call educational orders you probably will be able to give larger orders.

4344. *Chairman*: Of course, at the present moment the condition of things is abnormal?

Sir Maurice Hankey: It is.

4345. *Chairman*: The demand is abnormal?

Sir Maurice Hankey: Yes.

4346. *Chairman*: But one has to look forward to consider what the position will be when times are more normal?

Sir Maurice Hankey: Yes.

4347. *Chairman*: Assume a time when the abnormal conditions have, at any rate, eased down; is the proposal then that such orders as there are should be distributed not only to the Government factories and to armament firms like Vickers, but also amongst all these other firms who have been put in a position to manufacture?

Sir Maurice Hankey: Yes, I think so. The orders will come down to educational orders just to keep them going.

4348. *Chairman*: That, of course, will diminish the number of orders that are available for armament firms like Vickers?

Sir Maurice Hankey: Yes; but did not you rather get it in evidence from Vickers—I seem to remember it—that they said they dealt rather with specialised products.

4349. *Chairman*: Yes.

Sir Maurice Hankey: Highly specialised products.

4350. *Chairman*: Yes.

Sir Maurice Hankey: The sort of orders that will go to these firms will be for things like shells; and I rather think, from Vickers' evidence, that they spoke somewhat lightly of that type of order.

4351. *Chairman*: Yes; they said they did not deal in that class of article—their was a very different class of armament work.

Sir Maurice Hankey: Yes.

4352. *Chairman*: You think that the number of available orders for Vickers would not be materially affected?

Sir Maurice Hankey: That is my impression. Of course, I told you at the outset that I am not an expert on these supply questions.

4353. *Chairman*: The question is an important one when you consider the question of the export of armaments, because it is a thing to which great objection is raised. Of course, if it was a mere question of manufacture, I do not suppose we should have heard so much about the objection, but it is the manufacture plus the export which is the really objectionable feature. At the present moment, or up to recently, we have been told that the value of the exports to foreign countries, including ships, is about £4,000,000 a year; of course, that is a comparatively small amount; but is that small amount, in your opinion, essential in order to keep what you call the manufacture of armaments going; is it sufficient, and would it be disastrous, in your opinion, if this amount (small as it is) were to be discontinued?

Sir Maurice Hankey: The prior question is: Is £4,000,000 a small amount? If you look at my Tables A and B in Appendix IV to my statement you get there the armaments expenditure of the Navy and the Army spread over a great many years. Take any year you like until the latest year since the War; take 1926, if you like: there was a naval expenditure of £2,235,000. Let us take it for the Army; that year it happened to be £2,000,000, you see. Most of that £4,000,000, or a good deal of it, I take it, was on armaments and not on ships, because the export of ships has been small. I do not think it is a small amount in actual armaments expenditure. That is my first answer: that I feel great

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[Continued.]

doubt as to whether you can really call £4,000,000 a small amount; and in the second place I should say that, even if it is a small amount, it is worth having.

4354. *Chairman*: Do you think—take Vickers for example—that Vickers could be kept in a financial position to expand rapidly if they were deprived of the export trade? Is there any means by giving grants, or anything of that sort?

Sir Maurice Hankey: I suppose if you made up the value of the export trade by grants, you would get something; but, you see, what you would not get is training of the personnel, the practice in doing these things, and that is what is so important. That is what I was thinking of when I talked of the Dardanelles. You can make jigs and gauges and you can keep machines; you can pay for that, which is, in effect, I suppose, what we are doing with what you might call the shadow firms; but you want something more with regard to a firm like Vickers; you want them to get the experience, and they do get a very varied experience out of their foreign business.

4355. *Chairman*: I think you put your view shortly in these words, or something to this effect: that the adaptation of these private factories was no substitute for firms regularly employed in the manufacture of armaments?

Sir Maurice Hankey: Yes.

4356. *Chairman*: That is your view?

Sir Maurice Hankey: That is my view.

Chairman: I think that is all I wish to ask you.

4357. *Sir Philip Gibbs*: I suppose you would agree that all the arguments and evidence you have given this morning are based on the present situation in which there is no international agreement for the limitation of arms, and the question I would like to ask you is this: do you think that if there were an international agreement on the limitation of arms that it would invalidate a great deal of your present evidence?

Sir Maurice Hankey: I am very doubtful about that. Of course, it depends how far it got. I want very much further than that. If you would not mind I would like to turn to the last paragraph of my evidence:

"When a reliable international system for the preservation of peace is evolved, bringing with it a vast reduction of armaments, it may be that private manufacture of and trade in arms and munitions of war will languish and disappear for lack of orders. Until that time is reached their prohibition is fraught with grave danger and objection."

I think that is my answer to you on that, Sir Philip.

4358. *Sir Philip Gibbs*: I was wondering whether, for instance, if there were a somewhat drastic limitation of arms that would affect the foreign export trade a good deal, and might in fact cut most of it away, and in that case would not you have to envisage for the defence of this country, and for keeping up normal supplies, a system which was not based so much, therefore, upon the values received by the armament firms from their foreign export trade—some other system would have to be adopted in order to make up that difference?

Sir Maurice Hankey: I suppose it would come very gradually, would it not? You would still have the Dominions, the Colonies, and India as a market; and you would be getting orders for a good long time, because it would be a good time before the world settled down into its very much improved state of which you speak; and I think gradually something would have to be done by subsidy, or something like that, to keep the firms going, or something rather on the lines of this reserve arrangement which is being done now, or an increase in the number of government factories. I do not know; I feel it difficult to envisage rather because the firms did get rather less after the War. There is no doubt about that.

4359. *Sir Philip Gibbs*: At the beginning of your evidence you presented rather a powerful argument,

with which I think the Commission agrees, that no blame attaches to the private manufacturers with regard to the impossibility of rapid expansion at the outset of the War. I think most of the Commission are agreed that no blame attaches to them; but what I would like to ask you is this: do not you think that if the state had not relied so exclusively upon private manufacture before the War and had themselves organised a system by means of which the general industry of the country could be mobilised that the rapidity of expansion would have been very much accelerated and that long drag would have been avoided?

Sir Maurice Hankey: Of course I am very much in agreement with you there. If we had organised for an expansion it would have been a very different story; but I am not sure that we should have organised for expansion by increasing state establishments. We did rely quite a lot on state establishments. I told you this morning that three times the orders for munitions went to the state establishments that went to the private firms, but am I missing your point?

4360. *Sir Philip Gibbs*: Not at all, except I want, in continuation of what you have just said, to say that there is an alternative to state establishments, and that is a central government control of industry generally?

Sir Maurice Hankey: That is all industry? Not only the armaments industry?

4361. *Sir Philip Gibbs*: All engineering industry particularly, and, of course, all other industries in which their products are essential to war means.

Sir Maurice Hankey: You are taking me out of my depth there, I am afraid. That is rather beyond me. I am not an economic or industrial expert. I do not think I should like to express an opinion on that because that is a very, very much larger and wider scheme than I have ever envisaged.

4362. *Sir Philip Gibbs*: But you have suggested throughout your evidence to-day the necessity in time of war, and to some extent in time of peace, of mobilising and guiding the general engineering industry of the country.

Sir Maurice Hankey: So far as armaments are concerned?

4363. *Sir Philip Gibbs*: Yes.

Sir Maurice Hankey: Yes. Close co-operation is going on to-day in the Royal Air Force expansion, for instance. There is very close co-operation with very good results, I understand, and that progress, I think, is continuing now with the other departments; and then, of course, the whole are co-ordinated in the Principal Supply Officers Committee and various other bodies like the Defence Policy and Requirements Committee presided over by the new Minister of Defence Co-ordination. That is going on to-day.

4364. *Sir Philip Gibbs*: You would agree, would you not, and in fact you have actually said, that whatever the efficiency of private manufacture may be both before and during the War that it is not sufficient for (we will say a fifty-fold expansion, and therefore in time of war or in a time of abnormal anxiety regarding war it would be necessary, and is still necessary, to mobilise in some form the general industry of the country?

Sir Maurice Hankey: Yes, certainly in a major war. Of course you have to remember that wars vary in their intensity. If you have a war in the hinterland of Aden you do not want the same machinery as you do for a major war on the continent of Europe. You have only to look at the wars of the last century to see the infinite variations between them; but you are talking of major wars, of course?

4365. *Sir Philip Gibbs*: Yes.

Sir Maurice Hankey: And for them, of course, you will want the mobilisation of industry.

4366. *Sir Philip Gibbs*: Might I ask you what function is represented in your own mind as to

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[Continued.]

national defence with regard to the Royal Arsenal? What position do you think they occupy in your general scheme of defence?

Sir Maurice Hankey: The Royal Arsenal, of course, manufacture quite a lot of things. As I told you, the Army gets quite a lot from the Royal Ordnance Factories; and the Navy gets some things from them, and the Air Force gets still less. So that they are to begin with quite important elements in the peace supply. Again talking without being an expert on the supply side, I have no doubt that they are of great value in checking prices. Then they give you a number of experts in the whole business of supply and production.

4367. *Chairman:* And a great deal of repairing?

Sir Maurice Hankey: Yes, especially in war. Then they have attached to them research departments which are very valuable. I do not think they entirely replace the private ones, but they are very, very important—tremendously important, and very good, I think.

4368. *Sir Philip Gibbs:* It does seem that in your general evidence, in your desire to lay stress upon the vital importance of private manufacture, you do not say very much really about the possibility of expansion and expanding control of the Royal Arsenal.

Sir Maurice Hankey: I did not, perhaps, say so much this morning; but I do mention in my memorandum, when I am describing the different forms of manufacture on which we rely—I give the Ordnance factories expanded to their utmost, and normal contractors in private industry expanded to their utmost—I mention both. I had rather taken that as read. Of course there were limitations to the extent to which they could expand in the War. I do not quite know the reasons; it was partly because they had so much repair work, but I think it was a good deal geographical. They were old places and in crowded districts, and that kind of thing.

4369. *Sir Philip Gibbs:* You mentioned a list of articles which are not manufactured (we will say) at Woolwich Arsenal. We went to Woolwich, and it seemed to me that they were capable of manufacturing all those articles like, for instance, the very heavy kinds of gun mountings.

Sir Maurice Hankey: I was giving you a summary this morning, of course. I think I told you more or less about these in the footnote to paragraph 14 of my memorandum: "The Royal Ordnance Factories make forgings for land service guns up to 6 in., and can forge up to 9-2 in. (inner A tubes). They can also make 4 in. H.A. and 4-7 in. naval mountings. They also make heavy coast defence mountings." That is why I was rather careful to tell you this morning that although that was a list of the articles which for the most part were not manufactured in Ordnance factories there were some exceptions. In a further footnote I say: "Steps are being taken to lay out the Royal Small Arms Factory, Enfield, for manufacture of the lighter types. For the heavier types of machine guns we rely mainly on Vickers-Armstrongs. . . ." That was the information which I acquired about a year ago. I have not had it brought up to date.

4370. *Sir Philip Gibbs:* What I have in my own mind is that the Royal Arsenal and Dockyards and other establishments might be regarded as a sort of G.H.Q. of an organized system for defence, and therefore it seems to me that perhaps not sufficient importance is attached to those national establishments, and that they are perhaps being starved unnecessarily in order to hand orders to the private manufacturers?

Sir Maurice Hankey: With regard to them not being used, of course they are regarded as tremendously important. On our Principal Supply Officers Committee and the Supply Board, which is a sort of executive body of the Principal Supply Officers Committee, which has a whole number of supply committees under it, Woolwich is strongly represented.

The Director of Ordnance Factories is a member of the Supply Board. As regards starvation, I do not know about that. That is a new suggestion to me. I do not think anybody is going to be starved in the next few years; but I can imagine in the lean years that we have been going through they may have placed some orders with the private firms rather to keep them alive like they did before the War. I do not know. It is a guess.

4371. *Sir Philip Gibbs:* I was rather struck by the lists you gave of the relative orders given to naval dockyards and to private firms. You read out various lists showing that the proportion of orders received by the private firms tends to increase very largely; but I would like to ask you why should not more ships be built in the naval dockyards?

Sir Maurice Hankey: I can answer you by reference to a passage in paragraph 13 of my statement, which I obtained from the Admiralty. I have been very carefully into these things with the department. I have had great numbers of conferences with them, and I have had a great deal of written material: "If there should be any increase in naval strength"—this was written a year ago—"95 per cent. of the new orders would have to be given to private firms." That is because the dockyards, I take it, were as full as they could be.

4372. *Sir Philip Gibbs:* I am afraid I did not quite catch your answer.

Sir Maurice Hankey: That is because the dockyards were as full as they could be, they could not take more than that additional 5 per cent. There is another point I could mention on this. I mentioned just now Enfield. The Royal Small Arms Factory at Enfield is being laid out for the manufacture of the lighter types of machine guns. That does not look as though they were starving these establishments. They are finding more work for them.

4373. *Sir Philip Gibbs:* You laid a good deal of stress in your evidence on the efficiency of design and inventions created by private firms, but I rather want to suggest to you, or at least ask you, about the relative values of design coming from the national establishments. Now, it seems to me that perhaps the private firms are rather apt to exaggerate the importance of their novelty of design and of their variety of invention; but when one comes to guns and howitzers, and the ordinary type of weapon, one finds that the designs do not vary very much, and in fact that the designs actually come from the Royal Arsenal and from the government departments, and are handed down to the manufacturers to produce. Would you agree with that at all?

Sir Maurice Hankey: Sometimes it is one and sometimes it is the other. I remember a case not long ago of a coast defence design that one of the firms designed for a foreign order. It was a very good design and it has been taken up in the Dominions. Sometimes the firms get a good idea, and sometimes the government gets a good thing. I think some of the anti-aircraft designs of private firms have been very good indeed.

4374. *Sir Philip Gibbs:* I think the normal procedure in making contracts for weapons is for the design to be handed by the government to a contractor, and then he has to work to certain specifications?

Sir Maurice Hankey: But are not you confusing two things—specifications and designs? They are quite different things. You give a man a specification; that merely tells him what you want, the sort of thing you want, and then he has to put it into design. I think the Air Ministry, for instance—in fact, I read a passage which proves it this morning—sometimes sends out specifications and has a competition on them, but the design is with the private firm, and I think that is probably the general procedure. I think I am right there.

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[Continued.]

4375. *Sir Philip Gibbs*: I was rather given to understand by some witnesses that the specification which was handed to the contractor in many cases amounted to a design, and in any case I think I will base my remarks on the general fact that, apart from aviation, the standardisation of weapons has now become fairly fixed, and that a 6-inch gun is a 6-inch gun, and that the private firms do not suddenly develop strange, odd and terrifying weapons, but work really to a kind of standardisation.

Sir Maurice Hankey: When you except aviation do you except anti-aircraft too? I think there has been a good deal of development there. There is other development going on, there is the Bren machine gun and the other one—I have forgotten its name—which I mentioned this morning.

4376. *Secretary*: The Browning?

Sir Maurice Hankey: Yes. Then tanks also. There is an awful lot going on there in design, and in anti-tank work.

4377. *Sir Philip Gibbs*: I think a good deal is going on at Woolwich, if I may say so?

Sir Maurice Hankey: Yes.

4378. *Sir Philip Gibbs*: The drift of these questions is that I personally can envisage a situation in which it would be rather forced upon you, owing to (we will say) an international agreement on the limitation of arms, to rely more upon the Royal Arsenal as a sort of G.H.Q. for design and for gauges and jigs with the general industry of the country mobilised.

Sir Maurice Hankey: I do not think there is really anything between us on that. I think we do regard the arsenal as very important indeed for these things. That is the place where we get our own practical knowledge; that is the place where our own very expert people get their experience. I do not believe there is anything between us there.

4379. *Sir Philip Gibbs*: Would not that argument also rather include personnel? You keep on saying (and of course it is very important) that you must keep highly skilled personnel in the country; but it seems to me that whatever method is adopted, whether you lay more stress on the work in the arsenals, or more stress on private manufacture, that the same kind of men will really have to be employed under one system or another in order to supply certain quantities of arms, and that the efficiency of the personnel is hardly affected whether they are under government employment or private employment.

Sir Maurice Hankey: I do not see why efficiency should be affected at all. My point is not that they are more efficient or less efficient, but I thought the government would not employ so many. I think the tendency of the government would be to let the thing run down. I took the case of immediately after the War, and in fact all years after the War, and how difficult it would have been if you had introduced government monopoly in (say) 1924—that is when everything was down pretty low—how difficult it would have been to persuade Parliament to put up the extra apparatus as against the contingency of a great increase in (say) 1935. I think the private firms by hook or by crook, either by foreign orders or by making merchant ships, or whatever it was they made, did keep a good many of those men. One knows they lost a lot of them; a lot of them went abroad to America; but they did keep a good many. I think they kept a good deal more than the government would have kept.

4380. *Sir Philip Gibbs*: But is it not rather logical that, apart from the foreign trade, the same amount of personnel remains in the country whether it is employed by the government or by private firms? Is not that rather an unanswerable argument?

Sir Maurice Hankey: Actually engaged on armaments for the British Government?

4381. *Sir Philip Gibbs*: Yes. Whatever system is adopted, the number of the personnel and its efficiency depend entirely upon the orders given by the government?

Sir Maurice Hankey: Yes.

4382. *Sir Philip Gibbs*: On orders given by the government apart from foreign trade?

Sir Maurice Hankey: I suppose if you can keep a man going on other work that is somewhat analogous, for instance, we will say you have a man who makes heavy forgings and he has been working on those for guns—I hope I am not using wrong technical terms—and then L.C.I. come along, and they have a big project for the hydrogenation of coal and they want a forging which is rather similar; they buy it from the firm that was making it before and that keeps the man employed. I think you have a better chance of keeping men occupied on business that is sufficiently, or on occupations that are sufficiently near their war occupations to keep their hands in. Of course, also, there is the point that the variety of foreign orders is rather greater than we can give; the firms get orders for different sorts of things and they get a good deal of experience there and increased opportunities for training. They make types of things, I suppose, that we do not require which are required for particular countries.

4383. *Sir Philip Gibbs*: You used one phrase about the greater elasticity of the private trade?

Sir Maurice Hankey: Yes.

4384. *Sir Philip Gibbs*: And then you say in paragraph 29 it would be necessary to enlist engineering firms in case of war, and then you talk about forging plants for the hydrogenation of coal, and so on?

Sir Maurice Hankey: Yes.

4385. *Sir Philip Gibbs*: Could not a very fair argument be put up that the ordinary civil engineering in this country does actually provide an enormous amount of elasticity in invention and scientific knowledge, and that in the case of need all that extraordinary engineering skill could be very rapidly adapted to a government controlled system?

Sir Maurice Hankey: Oh, yes; of course it can be adapted; but I have also made the point that it takes a good deal of time. We are not the only nation who have thought about this. For instance, in America there has been a good deal of publicity about it, and I think that the point always comes out that there is a time lag. The great problem is to reduce that lag to the utmost; but I agree with you, Sir Philip, that in the course of the war you will develop all sorts of people who develop designs and inventions, and so on.

4386. *Sir Philip Gibbs*: But is not part of the purpose of the White Paper this year to extend the possibility of experience by placing orders with the smaller firms who have not previously manufactured weapons of war?

Sir Maurice Hankey: Not only the smaller ones; the larger ones, too.

4387. *Sir Philip Gibbs*: Although I may be wrong, it seems to follow from that that with your present system, or plan rather, of reorganisation, if you had a sort of central laboratory in which jigs and gauges, and so on, are kept that could be planted out in the general engineering industry of the country, that you would be able in any future war to avoid that very dreadful lag which took place in the last war?

Sir Maurice Hankey: I would go further than you, Sir Philip. I would not have all these things in the government arsenals; I would have them, if possible, somewhere near the place where they are going to be used. With regard to blue prints, and all that sort of thing, I dare say you remember there was great difficulty about those things at the beginning of the War. Firms used to come and look at a shell at Woolwich, and that kind of thing.

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[Continued.]

A tremendous lot has been done in all those kinds of directions since the War.

4388. *Sir Philip Gibbs*: That does, at any rate, help towards the prevention of that lag?

Sir Maurice Hankey: It helps; but I am afraid, in spite of that, there is always going to be a lag; although you may have some of the people trained you will not have others trained. There is bound to be a lag. I think everyone agrees in that.

4389. *Sir Philip Gibbs*: May I get on to the subject of foreign export trade? Of course a very great deal of the hostile criticism has been levelled against the armament firms on the foreign traffic in arms?

Sir Maurice Hankey: Yes.

4390. *Sir Philip Gibbs*: It seems to me—in fact, it is quite obvious—that you defend the foreign traffic in arms because you think it really is essential to our own defence by giving experience and by bringing in money to the armament firms, and so on, but do not you think that is an extraordinarily dangerous argument, and that if it is carried a little farther than you carry it, the orders become very apparent? For instance, I think you would admit that if we sell our most efficient weapons to foreign countries, as we do, that that does tend to develop a danger with which later we may have to deal?

Sir Maurice Hankey: I have always been very dubious about that argument. I do not think it does really develop danger. I think most of it goes to countries where there is not the least risk of its being employed against us, anyhow. I do not really know where the danger comes. There may be great advantages in it. Supposing you are going to apply collective security. You know what has happened in all the wars of British history. Wherever we have been allied we have had to become the banker and the arsenal, right up to the last war. I suppose there is some advantage from that point of view, and if collective security is going to work those people will come to us—our colleagues in the process will come to us for supplies, and there will be great advantages if we have supplied them before, will there not? I must not ask you questions; it is not fair.

4391. *Sir Philip Gibbs*: I notice that General Edmonds, in a quotation you give in paragraph 88, says in fact that the private traffic in arms did promote small wars.

Sir Maurice Hankey: I do not think he goes as far as that.

4392. *Sir Philip Gibbs*: He says that in parenthesis "thus promoting war, according to my knowledge."

Sir Maurice Hankey: I think "according to my knowledge" belongs to the next part of the sentence, after the comma.

4393. *Sir Philip Gibbs*: There is a dash after it; but, anyhow, it seems to assume that this traffic in arms did promote small wars.

Sir Maurice Hankey: I should like to know which small wars.

4394. *Sir Philip Gibbs*: Might I suggest to you two small wars which became very important afterwards because they were the prelude to the Great War, and those were the Balkan wars of 1912?

Sir Maurice Hankey: What were the causes of those? You have to go into what were the causes of those wars. I suppose the previous war, the Turkey-Italy war over Tripoli really started that ball rolling, did it not?

4395. *Sir Philip Gibbs*: I think it did; but I think also that those people, who were extraordinarily primitive people, and who used to fight each other as we play football matches on a Saturday afternoon, were developed into very highly dangerous groups of people by getting all these modern weapons from the private firms. In fact, I saw that with my own eyes.

Sir Maurice Hankey: I have seen things with my own eyes, too, in that part of the world; and I should say those wars were prompted very little by

armaments at all. Of course people cannot fight unless they have arms, but I should say it was the national societies and the tremendous political movements that prompted those wars. Right through the Levant there were societies of that kind. I remember going to a Turkish Island—I had been there last in 1900; then I went in 1907. Well, immense churches and schools, and all that kind of thing has grown up in many and many a village prompted by a national society—not a Turkish society; another nationality.

4396. *Professor Gutteridge*: One of those Greek national societies?

Sir Maurice Hankey: Yes.

4397. *Sir Philip Gibbs*: Do not you think those political conditions became a menace to the whole of Europe when those rather primitive peoples became armed with very dangerous weapons?

Sir Maurice Hankey: I do not believe they were very heavily armed. As General Edmonds says, they armed themselves a good deal with old stuff, and they went into war sometimes with very little armaments. Do you remember the war of 1897? The Greeks were very badly armed in that war.

4398. *Sir Philip Gibbs*: Later in the siege of Adrianople they were using the most modern weapons in the way of big guns and howitzers?

Sir Maurice Hankey: They had some.

4399. *Sir Philip Gibbs*: They had a good many. They were able to put up very heavy barrages and very heavy bombardments.

Sir Maurice Hankey: Those were really what I call in my paper irrelevant wars.

4400. *Sir Philip Gibbs*: I do not think you would be able to say that of the war between Bulgaria and Serbia.

Sir Maurice Hankey: No; but remember, the origin of that war had nothing to do with armaments at all. The origin of that war was fighting over the spoils.

4401. *Sir Philip Gibbs*: Yes, but I feel myself—of course this is rather an argument than an endeavour to obtain evidence—that owing to the fact that they were heavily armed they became first-class nations as fighters, and therefore involved the whole of Europe, whereas if they had remained primitive they would not.

Sir Maurice Hankey: Supposing they had remained primitive they might have been over-run by their previous masters. I suppose it was rather a good thing those countries securing their independence in the long run, and they might have been over-run if they had not had the means of resistance.

4402. *Sir Philip Gibbs*: Generally speaking, it seems to me that you do in your last paragraph of your evidence under-estimate the dangers which to my mind, anyhow, seem to exist in the foreign traffic in arms, and that you do not allude in any way at all to any abuses which are included in that traffic in arms. The question is: do you recognise any abuses?

Sir Maurice Hankey: I think that rather comes into my next appearance, if you can put up with another.

Sir Philip Gibbs: Thank you very much.

4403. *Dame Rachel Crowdy*: I have listened, as I am sure all the members of the Commission have, to your extremely able defence of the private manufacture of arms. Have I understood you rightly—and I think I did? Your contention was that private manufacture should not be abolished because prohibition would be disastrous—I took your words down very roughly—to Imperial Defence. In any case it would be out of the question at a time of crisis, and the case had not been established against private manufacture?

Sir Maurice Hankey: Yes, I gave that as my general summary.

4404. *Dame Rachel Crowdy*: Those were the three general contentions?

Sir Maurice Hankey: I thought I ought to tell you where I was going so that you could follow my argument better.

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[Continued.]

4405. *Dame Rachel Crowdy*: I think no one would dispute the fact that trade certainly played an enormous and a very valuable part in the last war; that it plays a very important part, and a very large part in the present scheme of Imperial Defence. I suppose it is rather more debatable in the minds of some of us as to whether it need be such an important part not in the defence of to-day but the day after to-morrow. Then, again, I think probably a good many of us felt great sympathy with what you said about not in any case swapping horses when crossing the stream; but when we get to your third contention about private manufacture, that the case against private manufacture has not been proved, I find myself in a very difficult position because I cannot really distinguish very clearly between your first memorandum and your second memorandum, and I am therefore not quite clear as to how far one can question you on that third contention.

Sir Maurice Hankey: Perhaps I might explain. I only mentioned the third contention so that on the first day I should make it quite clear where I stood, but I rather hoped you would keep your cross-examination on that third point until next time for the reason that my second memorandum deals almost exclusively with that point.

Dame Rachel Crowdy: What was in my mind was the footnote to paragraph 103 of your statement, and I did not want to lose my opportunity of commenting upon it. There is this rather astonishing footnote:

"Since this was written a study of the evidence of 'grave objections' to and 'evil effects' of private manufacture has been made in a second memorandum, and it has been shown that the whole case against private manufacture is not proven and greatly exaggerated, and that the alleged 'evils' would not be removed by government monopoly."

I will take up my remarks on that when we discuss your second memorandum, but I would like to say this one thing here, that I do not think you will find all the members of the Commission are quite in agreement with you on that particular categorical statement. I have nothing else to say; I was going to talk about that.

4406. *Sir Thomas Allen*: You will appreciate, Sir Maurice, that there is an aspect of the case we have to inquire into that has not been dealt with by you in your evidence submitted to-day. Under our terms of reference we are delegated to inquire into the alleged evils of the traffic in arms. Your evidence this morning has rather leaned towards the value, the importance, and the significance of private manufacture. Have you any views that you could give us on the other side at all, because you did tell us this morning that both the present Prime Minister and his predecessor had told you to give to this Commission every service possible. Could you help us in that direction? Do you know of evils that do exist and which might under some other system be removed?

Sir Maurice Hankey: No. The whole of my second memorandum is devoted to that point really; but taking up the question of whether these evils do exist or not, the case that I make there is that they have not been proved.

4407. *Sir Thomas Allen*: You did remark somewhere that it was only recently that attention has been called to this matter. Mr. MacDonald, who was Prime Minister at the time, made this speech at Southampton on 13th November, 1934. He said he called the private manufacture of armaments a dangerous trade, and he said that some of the competition that is carried on in that industry is bad and unsavoury. Moreover, he said it may often mean arming against ourselves. Lord Rennel of Rodd, who is a famous diplomat, and I think a former ambassador, also said the other day it would not be without value if associations in this country were to direct their energies in investigating the control over publicity and the political influences

exercised by these vast interests on the Continent which are engaged in the manufacture and furnishing of armaments; and then a witness who came before us, not unimportant, in the person of Mr. Noel Baker, who has had very great experience in these matters of lobbying at the Disarmament Conference, said: I am convinced from my personal experience that agents of the armaments firms were engaged in work like Mr. Shearer with greater discretion but with no less persistence. My point is with reference to Article 8 of the Covenant, where reference is made to this matter, that there are no records with regard to prior investigations, that does not help us very much.

Sir Maurice Hankey: Of course I have deployed the whole case on that side, including every point you have mentioned, in the second memorandum. I may be right or I may be wrong, but my evidence is there for you, and I think you are going to hear me next time about that.

4408. *Sir Thomas Allen*: That is my difficulty. I am rather in an awkward position about questioning you at all to-day. I would very much have preferred that we had the second paper before we proceeded.

Sir Maurice Hankey: I see. It is rather late, is it not? I am afraid I have been a great nuisance to you. I have read all the evidence, the whole case being wonderfully deployed on the other side, but no one stated the case on the side of private manufacture. The armament firms have given their side, and I came really to give another side—it is not the government's side; what I call the departmental side, which is what I gave this morning in favour of industry; but I thought it would be just as well to put together the whole case in opposition to the evidence which has been given against the side I am advocating.

4409. *Chairman*: It is really the speech of the counsel in reply.

Sir Maurice Hankey: That is right.

4410. *Chairman*: That is a fair summary, is it not?

Sir Maurice Hankey: I am afraid I am a very poor counsel, but that does define what I have taken on.

4411. *Chairman*: It is not any longer evidence—your second statement—it is a criticism of the case made against private manufacture?

Sir Maurice Hankey: Yes.

4412. *Chairman*: A criticism of the evidence which has been given in support of it, and your personal contention as to what the correct view should be?

Sir Maurice Hankey: That is exactly right. I cannot help it if it was too long to be done in one day. It was such a very big subject.

Chairman: Any questions that anybody wants to ask need not be confined to this. You can wait until we have time to go into the second memorandum and then ask any questions you like covering both.

4413. *Sir Thomas Allen*: Is it contemplated under the White Paper that we should have some further development in national factories? What some of us are afraid of is this, that in a state of emergency this system is going to be so perpetuated that the last position will be worse than the first, and after this stunt is over we shall have a lot of people in this country trained to make armaments who will still want continuity of work, and our position will be made more difficult, and that if the government even under this rearmament scheme had made some further attempt to do something on a nationalisation principle we should have had greater confidence than we feel at the moment.

Sir Maurice Hankey: I have already told you of one case; the Enfield factory making machine guns; and I have very little doubt that there may be other cases. Of course it has not begun very long—that is, the re-conditioning of the older services. The re-conditioning of the Air Force began back in 1934, but the re-conditioning of the other

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services has not got very far, and perhaps it is rather early to answer your question. It is just possible I may be able to say something more on that next time. I will make a note of that.

4414. *Sir Thomas Allen*: Because I have heard already that under the new scheme of rearmament contracts are going out to recognised armament firms and there is a good deal of sub-contracting going on at present which must be largely out of control of the government.

Sir Maurice Hankey: It is all being worked out very carefully. I think the sub-contractors have been linked up into the scheme to some extent.

4415. *Sir Thomas Allen*: Do not you think the government could have done something even at this juncture? Take the case of aeroplanes, for example, which is practically a new industry. 80 or 90 per cent. of the total output of aircraft is for armament purposes. If there had been the will could not an attempt have been made to make a start in that direction?

Sir Maurice Hankey: The whole experience of the Air Ministry is against that—they get greater efficiency out of the private firms. What the Air Ministry want is the best aircraft they can get, and they are quite satisfied that the system they are working under is the best, otherwise, of course, they would have built factories.

4416. *Sir Thomas Allen*: Has any other system been really tried as a business proposition?

Sir Maurice Hankey: To some extent in the War. They have war experience. There was a certain number of aircraft made towards the end—it was very small at the beginning of the War certainly. There was the Royal Aircraft Factory at Farnborough. That, of course, was mainly experimental, but I think it built some.

4417. *Sir Thomas Allen*: You have laid great stress upon the importance and significance of trading in arms. Do you see any reason at all why the government should not be the sole salesman?

Sir Maurice Hankey: Trade in arms?

4418. *Sir Thomas Allen*: Yes.

Sir Maurice Hankey: Supply other countries with arms?

4419. *Sir Thomas Allen*: Yes.

Sir Maurice Hankey: I see very grave objections to that. You start this horrible business of competition between governments for orders. There has been competition in the past where governments have pushed their firms because they wanted to get them the orders and got the increased potential, and so on. It would be worse if governments were manufacturing armaments for foreign countries.

4420. *Sir Thomas Allen*: Could not you limit the competition by having one salesman in each country as against many?

Sir Maurice Hankey: A government salesman who sold—

4421. *Sir Thomas Allen*: One government being the salesman to another?

Sir Maurice Hankey: It is going to be very difficult to work. Supposing one country produced such very fine things, and offered them so cheaply that all the world ordered their arms there, and that government thereby was enabled to build up a gigantic war potential, it would dominate the world. The other countries must compete to prevent that happening. That would mean the whole world being dependent on one or two countries. It seems to me to open the door to the most dreadful bargains and difficulties of every sort and kind. I should think the effect on diplomatic relations would be absolutely deplorable.

4422. *Dave Rachel Crowdy*: But would not diplomatic relations control that situation to a certain extent. One cannot imagine country A touting in country C for orders in the event of some on-coming trouble, if country A had in Geneva (say) a diplomatic delegation trying to ensure peace between

country C and another country, whereas the private manufacturer would probably rush to the spot.

Sir Maurice Hankey: Supposing country A has not got representation in Geneva at all, and does not hold with Geneva, what happens then?

4423. *Sir Thomas Allen*: You are aware, of course, of the peace ballot which took place in this country?

Sir Maurice Hankey: I do not know much about it. I was in the Dominions at that time, and I really knew nothing at all about it. It was all over when I came back.

4424. *Sir Thomas Allen*: But I presume you do know that 11,000,000 people expressed their readiness and willingness to put their confidence in the government and take the risk that it should be under the obligation to manufacture arms for itself and to prohibit export. Would you regard that as a gesture at least on the part of the people of this country that the government should make some greater attempt than it is making under the White Paper to meet the conscience of the people as expressed in the peace ballot?

Sir Maurice Hankey: My reply to that is the 11,000,000 people never heard the case. I did not know the case before I went into it, and I do not know where they could find it. They have never heard the case; but I hope this Royal Commission is going to give it to them. I do not attach any importance to a ballot where opinions can only have been given almost by instinct, or something of that kind. After all, there has been terrific propaganda for years and years against private industry. I should think it is almost unexampled. The propaganda has been tremendous. I have never seen the other case really put in full. It would have been very much easier if I had not had to start from the beginning to look into the facts and try and draw a dispassionate view, because all the propaganda is the other way. I do not think I should attach any importance at all to a vote if it was taken in those circumstances. A vote after the people had had the Royal Commission's report might, perhaps, be a different matter—if they read it.

4425. *Sir Thomas Allen*: It might be a larger number.

Sir Maurice Hankey: That depends upon the report, does it not? I am assuming it gives both sides of the case fairly.

4426. *Sir Thomas Allen*: Their view was arrived at in the calm quiet of their own homes without any political, external, or public persuasion. I should think it was worth some consideration at any rate.

Sir Maurice Hankey: I am afraid that in the quiet of their homes people had only one side of the case before them. I confess until I started to go into this carefully I had not any idea of the—

4427. *Sir Thomas Allen*: In the quiet of your own home you have come to your conclusion?

Sir Maurice Hankey: Yes. I have come to my conclusions after a very intensive study. Off and on I have spent every week-end on this since I came home from Australia.

4428. *Sir Thomas Allen*: And your view is that that the people who voted on that ballot had not the opportunity to study that you have had?

Sir Maurice Hankey: I think they had not that opportunity.

4429. *Professor Gutteridge*: Can you tell me anything about the French powder monopoly?

Sir Maurice Hankey: No, I do not know anything about it.

4430. *Professor Gutteridge*: Then I will not pursue that. Do not you think there is a case for the complete abolition of the trade in obsolete arms. Have you applied your mind to that as a separate question?

Sir Maurice Hankey: I have not really applied my mind to that question. I think it is in quite a different category from the rest from the point of view of Imperial Defence. Beyond that I should not like to go very far because I have not thought

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[Continued.]

is out, and I have not discussed it with other departments, and so on.

4431. *Professor Gutteridge*: Perhaps you would consider that before next time, because I can only say from the evidence which we have heard it seems to me, leaving all other questions on one side, there is a very strong case for doing away with that trade.

Sir Maurice Hankey: I will think about that. 4432. *Professor Gutteridge*: I think it would lighten the task of our government in certain directions very much, and also promote the peace of the world. Perhaps you will consider that.

Sir Maurice Hankey: Yes.

4433. *Professor Gutteridge*: I am not quite sure whether I ought to raise it now or on your second memorandum, and that is the question of definition. You have alluded to definition at some length here.

Sir Maurice Hankey: Yes, I have.

4434. *Professor Gutteridge*: Perhaps I might put the point to you. It seems to me although it would be no doubt very difficult to define armaments accurately, it would be possible to draw up a working list such as that which is used by our government authorities for licensing purposes?

Sir Maurice Hankey: Yes, it is certainly possible to draw up a list. What has been rather in my mind is that it is rather difficult to draw up a working list that is really on a logical basis.

4435. *Professor Gutteridge*: Yes, I agree it may not be logical and it may not be scientific; but for my own part I cannot see any difficulty in having the kind of list that (say) the Board of Trade works on.

Sir Maurice Hankey: The kind of list you have in the Convention?

4436. *Professor Gutteridge*: Yes, and there is one scheduled to the Order in Council of 1931.

Sir Maurice Hankey: The objection I see to that is that I think afterwards you will find that all the allegations as regards grave objections and evils which have been so much exaggerated, will be urged against the things that are out of the list.

4437. *Professor Gutteridge*: That may be so, but that is not my point. I just wanted to have your views as to whether it would not be possible for working purposes to have a list which would more or less be what was required.

Sir Maurice Hankey: I think there is not the smallest doubt you could draw up a list, but what I am afraid is you will not settle the controversy. That is all.

4438. *Professor Gutteridge*: Perhaps that is so.

Sir Maurice Hankey: And that a lot of the arguments will, whether or not they are true at all, be brought up against that.

Professor Gutteridge: Probably the sort of list that is used in connection with licensing would do all that is necessary I should think.

4439. *Sir Kenneth Lee*: I want to ask you two or three questions actually on your statement. In paragraph 35 you say: In the aircraft industry there are a number of competing design staffs which would not be retained under a system of state manufacture. Why should not they be retained under a system of state manufacture?

Sir Maurice Hankey: I see that passage is actually put into italics.

4440. *Sir Kenneth Lee*: Yes.

Sir Maurice Hankey: I think what is at the back of that is that the whole tendency would be to reduce your designing establishment to one place if you had government manufacture. One knows the way parliamentary committees, and so on, work. They set on the department and say: it would be very much in the interests of economy if all design was concentrated in such and such a place whereas now you do get in theory your design spread about, as I said this morning, in rather different environments; in different circumstances. I do not think it is more than that.

4441. *Sir Kenneth Lee*: But the government have actually done research and design work on a much larger scale than private manufacture could possibly undertake.

Sir Maurice Hankey: That may be so. I do not know what the comparison is between private and public research. A great deal is being done by both. I remember Lord Mond telling me once that anything the government was doing was ridiculous compared with what his firm were doing, but I do not know whether that was right. Of course it is done on a big scale in the government.

4442. *Sir Kenneth Lee*: Could it be done on a much greater scale by the state if the state wished?

Sir Maurice Hankey: Yes, if you are prepared to spend your money, and Parliament was prepared to approve it, and you did not get cut down when money was a bit short. There would not be anything to compete with. At present you have all those people in competition with one another. You would rather lose that element.

4443. *Sir Kenneth Lee*: They would still be competing surely if there were different staffs working in different places?

Sir Maurice Hankey: No, I do not think they would, because they would all go to a central place. I do not think you would get that same sense of competition that you get in what I know some people object to so much, the private element. It gives you very keen competition.

4444. *Sir Kenneth Lee*: May I now turn to the profit element?

Sir Maurice Hankey: That is in my second memorandum.

4445. *Sir Kenneth Lee*: There is something about it in paragraph 68. If you would sooner deal with it on your second memorandum we had better leave it.

Sir Maurice Hankey: I do not know what the point is.

4446. *Sir Kenneth Lee*: You say "... a better control over profits will be exercised ..." What control is it intended to exercise? Is it percentage on profits which is going to be controlled, or absolute profits?

Sir Maurice Hankey: I am not prepared to talk about that. You will find in the White Paper some remarks about that, and I am not prepared to go beyond that. After all, you have all the experience of the Ministry of Munitions in controlling profits, and you are getting the experience of your present reconditioning; but that really is not my subject. There have been statements in Parliament, and so on, I think, about it. But it is not my subject except that it is very much in the programme.

4447. *Sir Kenneth Lee*: Of course it is one of the objections to the private manufacture of arms?

Sir Maurice Hankey: Yes.

4448. *Sir Kenneth Lee*: It is one of the objections which have been brought before us, anyway.

Sir Maurice Hankey: That they made undue profits?

4449. *Sir Kenneth Lee*: Yes.

Sir Maurice Hankey: And then they were controlled.

4450. *Sir Kenneth Lee*: Yes; the higher the price the higher the profit.

Sir Maurice Hankey: Yes; but as the Ministry of Munitions got going it controlled it, did it not? A great deal of control was exercised in the War by the Ministry of Munitions over the profits of the private firms. They made their margins, and so on. They got all that experience. I think, however, I have said in my historical account that I have not taken the question of profits into consideration; but surely profits must have been a very difficult thing at that time. Obviously if you produce much more of a thing you can produce it much cheaper; and so when the Ministry of Munitions got going, and these things were being produced in large quantities, naturally they were much cheaper. Moreover, when you got the new national shell factories, the national projectile factories, they had the very latest lay-out; they had all the experience that the other people had got. They had all the lessons learned. Obviously under a mass production lay-out it must

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[Continued.]

be much cheaper to produce a thing so long as you are producing enough than it is to produce in the relatively small quantities such as there were at the beginning of the War. I am rather disposed to think there has been a good deal of exaggeration in the criticism of the firms on that.

4451. *Sir Kenneth Lee*: I was wondering whether there was any national system being adopted at the present time to limit the profit.

Sir Maurice Hankey: I am not an expert on that, and, quite frankly, I do not think I ought to talk about it. You see, all that is in the hands of the Minister for Co-ordination of Defence.

4452. *Dame Rachel Crowley*: Do you feel you could tell us about it if we had a private meeting?

Sir Maurice Hankey: I could not tell you very much. It is not really fair. There is the new Minister. It is not my subject. He has his own experts. I should be afraid of queering his pitch, or something. I think it would be very wrong of me. I am sure I ought not to talk about that. I do not want to be aggressively obstructive, but it is not my subject.

4453. *Sir Kenneth Lee*: I only mentioned it because it was in the memorandum, and because it has been mentioned here many, many times as being one of the serious abuses.

Sir Maurice Hankey: I could not mention all that list of things without mentioning it as one of the things to be tackled, and it is being tackled. That is all.

4454. *Mr. Spender*: My questions are quite general; they are not on any of these points. When we were appointed it was assumed that all these questions, including nationalisation and other questions arising, were open questions which had been submitted to us for an impartial consideration; but you seem to say now, either owing to force of circumstances or to the action of the government, a very important part of the subject must be considered closed. You said it was unthinkable that any answer but one could be given to it. Is that your view?

Sir Maurice Hankey: At the present time.

4455. *Mr. Spender*: Your view is that it would be useless for us to enter into an argument about a large part of that case?

Sir Maurice Hankey: I do not know about useless, but I do not think the thing could be done. I am not speaking for the government; I am giving you my opinion, and my opinion is that it could not be done.

4456. *Mr. Spender*: Then a report on it would be just abstract theorising?

Sir Maurice Hankey: Yes.

4457. *Mr. Spender*: I am not expressing any opinion about that, but it is rather important.

Sir Maurice Hankey: Anyhow, it would take a good time, would it not? Supposing you made a recommendation one way, the time before it could be carried into effect would be rather long. That is all.

4458. *Mr. Spender*: You said you were against monopoly, but you do not mean against state control. As I understand it, you are for the right kind of control and supervision which brings the whole of the industry, not only the technically called armament departments, under a preliminary survey as a potential. That is your general view?

Sir Maurice Hankey: Yes, very strongly.

4459. *Mr. Spender*: There is no real opposition between pure individualism in this matter and pure state control. In your view the object is to find the right compromise between the two things?

Sir Maurice Hankey: That is right.

4460. *Mr. Spender*: The compromise you call co-operation?

Sir Maurice Hankey: Yes.

4461. *Mr. Spender*: We have been a little confused in the terminology of this matter. We have been talking about private manufacture, and we find the witnesses generally seem to be using the expression

in one sense to mean the munition firms like Vickers, and so forth, and in the next sentence they mean all industry. A good many of the witnesses were professedly socialist, and to them your argument would not apply.

Sir Maurice Hankey: I think those who defended private manufacture disclaimed that that influenced their opinions, did they not?

4462. *Mr. Spender*: I understand the socialist members of the American Inquiry came to the conclusion that it must be all or nothing.

Sir Maurice Hankey: Yes.

4463. *Mr. Spender*: With regard to the Turkish case which has formed a considerable part of our talk to-day about the trade in arms. Did not all arise out of the attempt in 1912 and 1913 of one power to control the army and the other the navy. Do you remember that Liman von Sanders was appointed to the army and a British Admiral to the navy, and was not it part of that arrangement that we should supply the Turkish fleet?

Sir Maurice Hankey: My recollection of it is that we merely lent the Turks naval men. I do not think we controlled the fleet in any way. I think the admiral there was absolutely outside the orders of the British Government.

4464. *Mr. Spender*: It would follow naturally if he wanted certain munitions, or said he wanted them, that the munitions would be sent?

Sir Maurice Hankey: Probably.

4465. *Mr. Spender*: Then the other side of that was we were constructing battleships for the Turks which we had the right to commandeer in case of war?

Sir Maurice Hankey: Yes.

4466. *Mr. Spender*: Is not that an important side of it? These arrangements are often reciprocal?

Sir Maurice Hankey: Yes.

4467. *Chairman*: I should like to ask you a question with regard to cost. Supposing by experience it is found that under present conditions it is not possible to obtain the munitions you require at a reasonable cost. Assuming that to happen—I do not know whether it is possible or not—the only alternative then would be nationalisation, would it not? If you could not get the goods at a fair price then you would have to make them yourselves?

Sir Maurice Hankey: Yes, I suppose that would be so, but I think it is very hypothetical.

4468. *Chairman*: I hope it is. I will not say I hope it is, but I hope people will be able to find out what a reasonable cost is and get the goods at a reasonable cost so long as this system goes on. That is what I mean. It is not always easy to find out what a reasonable cost is.

Sir Maurice Hankey: Of course, it is a matter into which a number of very good brains have been put. The whole thing is based on real co-operation which is the best basis of all. I have always stood for co-operation all my time—co-operation between the services, co-operation between government departments, and to-day I am standing before you for co-operation in this matter as the proper basis.

4469. *Chairman*: When you are inviting a number of fresh firms to enter into this business co-operation may not be quite so easy.

Sir Maurice Hankey: I am not sure about that. I do not think I should like to admit that, because I think they have very strong patriotic impulses, and if they think the country needs their help they will give it. Perhaps you think I have too high an opinion of human nature.

4470. *Chairman*: Oh, no; I do not think you can have too high an opinion of human nature.

Sir Maurice Hankey: I believe if you can get the right spirit you will overcome those sorts of difficulties completely. I think they are overcoming them to-day in the air programme.

Chairman: Thank you very much; that is all for to-day. We shall not meet again until the 20th.

(Adjourned.)

APPENDIX A.

STATEMENTS OF EVIDENCE SUBMITTED BY COLONEL SIR M. P. A. HANKEY,
G.C.B., G.C.M.G., G.C.V.O.

I attach herewith two Memoranda of Evidence dealing only with item (1) of the Terms of Reference to the Royal Commission, which is as follows:—

"(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption

(a) by the United Kingdom alone:

(b) by the United Kingdom in conjunction with the other countries of the world:

of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade."

The first Memorandum was prepared before the evidence taken by the Royal Commission was available, but a few notes have been added subsequently at appropriate points as comments on evidence on particular subjects.

The second Memorandum* takes the form of observations on the evidence in favour of prohibition up to and including the Tenth Day.

I would ask the Royal Commission to note the following points:—

(1) Both Memoranda are prepared from the general point of view of Imperial Defence, and I am indebted to Government Departments for much assistance.

(2) If technical evidence is required from Government Departments, application should be made to the Secretaries of the Departments concerned.

I enclose, also, short confidential supplements* to this evidence, dealing with matters which it would not be in the public interest to include in public evidence. If the Royal Commission desire to put any questions to me on these confidential supplements, I would request that this be done in private session.

M. P. A. HANKEY.

December, 1935.

* Not printed.

FIRST MEMORANDUM OF EVIDENCE

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PART I.

INTRODUCTION.

1. On 4th March, 1935, a Statement Relating to Defence, dated 1st March, was circulated to Parliament by the Prime Minister as a White Paper (Cmd. 4837). The first section recalls that the establishment of peace on a permanent footing is the principal aim of British foreign policy, and shows why every British Government is bound to use its utmost endeavours to maintain peace. The chief methods by which His Majesty's Government have pursued this policy in recent years, the Statement continues, has been by unwavering support to the League of Nations by the promotion, in co-operation with other nations, of international instruments designed to produce collective security and a sense of security among the nations, by efforts to promote international understanding in general, and in particular to bring back into the comity of nations all the countries which have been enemies in the late War; and by the reduction and limitation of international armaments in order to promote the work of pacification and steadily to reduce the means of making war. Under each heading the Statement contains a list of post-War efforts to achieve the above objects. The Statement goes on to explain in some detail the reasons why His Majesty's Government, while continuing with undiminished vigour their efforts to promote peace and while maintaining their confidence in the ultimate triumph of peaceful methods, feel that additional expenditure on the armaments of the three Defence Services can no longer be safely postponed.

2. One of the most important factors in the re-conditioning of our defence forces and defences is the means available for the supply of war material of all kinds in the varying conditions of peace and war. This aspect of the questions under consideration by the Royal Commission necessarily takes a prominent place in this Memorandum of Evidence, and a good deal of attention is devoted to the

position occupied by the private arms industry in these arrangements. In Part III consideration is given to some of the international aspects of the problem. Before coming to details there are one or two considerations of a general character to which it is desired to draw attention.

THE COVENANT AND PRIVATE MANUFACTURE.

3. The only mention in the Covenant of the League of Nations of manufacture by private enterprise of arms and implements of war is contained in the following extract from Article 8:—

"The members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety."

Note.—The origin of the attribution of "grave objections" and "evil effects" to private enterprise is examined in some detail in my Second Memorandum, Part II and especially Annex II, where it is shown that the statements were made, so far as available records indicate, without prior investigations.

It should be noticed that this passage does not suggest the prohibition of the manufacture by private enterprise of munitions and implements of war, nor the institution of a state monopoly of such manufacture and trade. It is "the evil effects attendant upon such manufacture" that are to be prevented. Prohibition is only one of the methods by which this might be achieved.

REMARKS ON DEFINITIONS.

4. A point which confronts the investigator at the outset is the correct definition of "arms and munitions of war". The definition is one which the Royal Commission will no doubt determine for itself, having regard to the nature of the objections

urged against private manufacture. The International Convention for the Supervision of the International Trade in Arms and Ammunition drawn up at Geneva in 1925 (Cmd. 3448) establishes categories of arms, ammunition and implements of war for the purposes of the Convention. For convenience of reference these are attached in Appendix I.* The problem placed before the Royal Commission in Item 1 of its Terms of Reference, however, differs somewhat from the subject of the said International Convention, and the definition of "arms and munitions of war" may be considered to deserve separate consideration.

5. Presumably the Royal Commission will include in the definition lethal weapons and all that is required for their effective employment and maintenance. For example, among lethal weapons would be included guns of all kinds (including howitzers and mortars). A naval gun is of no value for naval warfare without a ship, to which its mounting is fastened rigidly.

It appears necessary therefore to include warships (including submarines and aircraft carriers) as well as their guns and mountings in the definition. Similarly, on land a gun is useless without its mounting (as in the case of most coast defence guns), or, in the case of moveable guns, its carriage and its limbers, etc., for ammunition. So gun mountings, carriages, limbers, etc., must be included. Submarine mines, torpedoes, depth charges and apparatus for their discharge, aeroplanes, seaplanes and flying boats, bomb-release mechanism, tanks, armoured cars, machine-guns, small arms, pistols, grenades, bayonets, swords and sabres, must evidently find a place in the list. There have to be considered also a variety of scientific instruments (such as fire-control and range-finding instruments), sighting-gear for aeroplanes, searchlights, telephone, wireless and signalling apparatus for all three Services. The definition of "munitions" must include shot, shells and air-bombs of all kinds, small-arms and machine gun ammunition, certain kinds of fireworks and such accessories as propellants (cordite), explosives, detonators, fuses, primers and caps. Within the general definition of "arms and munitions of war" would appear to fall protective materials such as hardened steel for armour-piercing projectiles and for armour-plate and bullet proof plate as used for ships, coast defences, gun and machine gun shields, tanks, armoured cars, aircraft and steel helmets, and all the apparatus of chemical warfare, including protective appliances or materials like gas-masks, anti-gas clothing and chloride of lime.

6. An important point arises as to how far manufactured component parts and constituents of arms and munitions of war ought to be included in the definition. Warships, for example, require boilers, engines, propelling machinery, electrical appliances of many descriptions, and all kinds of auxiliary machinery and apparatus of the highest quality. The same principle applies to aircraft, tanks, and armoured cars and to such essentials of modern warfare as mechanical transport and in some campaigns railway material, without which neither an army nor an air force can take the field under present-day conditions. Another case is that of holed transport. Are these borderline cases to be included in the definition? Again a shell is of no value without explosive, nor a gun without propellant. State factories manufacture explosives and propellants, but their constituent chemicals are made by private industry. Are we to include in the definition of arms and munitions of war nitric and sulphuric acid? What, again, is to be the position of shot guns and sporting rifles and ammunition? Instances could be multiplied over a wide range of materials of war to show how arms and munitions shade off from the completed article through its components and essential accessories, first into articles

approximating to those of civilian manufacture and use, but with a distinctive form, such as uniform clothing, boots and equipment, or saddlery, and finally into such materials common to military and civilian life as medical supplies and equipment, lubricants, various kinds of fuel (particularly liquid fuel of all kinds and petrol), which often require a special specification or standard for Service purposes. At the extreme end of the scale, perhaps, comes food—for an army is said to march on its stomach, but presumably no one would propose to include it since it is necessary to life itself. And in some theatres of war distilling apparatus and plant for raising and conveying water may be just as essential as food.

7. A similar difficulty arises as to the definition of "private manufacture" of arms and munitions of war. There is, to the best of my knowledge and belief, no firm in this country which manufactures arms and munitions of war exclusively. A large firm, like Vickers-Armstrongs, which is capable of producing a variety of arms and munitions of war, is engaged at the same time in the output of important civilian products. Then there are firms like (say) Imperial Chemical Industries, or some of the ship-building firms, whose main occupation is to produce articles of commerce, but which produce in addition a certain amount of war material and provide an essential part of our "war potential". There are other firms with which small orders may be placed, either direct, in order to develop or educate them to carry out orders in time of war, or as sub-contractors. The number of sub-contractors, whether to the State or to the private manufacturers, must be very large, for there are few weapons or munitions of war that are made entirely by one manufacturer. To take one example, I am assured by the Admiralty that it would scarcely be an exaggeration to say that the firms engaged in the different processes working up to the production of a warship would exceed one thousand spread all over the country, and it will be realised that, if all these firms are regarded as being engaged in the manufacture of armaments, a very wide field of industry has to be covered. The case arises also of firms which produce articles like scientific instruments, optical glass, wireless telegraph or telephone apparatus, etc., which, though essential to modern warfare, are equally important for industrial, commercial or research purposes. Here, again, accurate definition is extremely difficult.

8. It is not easy to draw up definitions which will conform to some logical principle, since, if private manufacture of completed arms and munitions of war is to be considered open to objection, it would appear, logically, that the same objection applies (though perhaps in varying degrees) to constituent parts, components, accessories and other indispensable requirements of the defence Services. Nevertheless before legislation could be introduced to prohibit private manufacture and to replace it by a state monopoly accurate definition in these matters would be essential. So far as the first part of the Terms of Reference (with which we are now dealing), however, is concerned, the question of definitions would appear to follow rather than to precede the question of principle whether private manufacture is to be prohibited or not. To this we will now turn.

Note.—In my Second Memorandum of Evidence it is shown that, up to date, the case against private manufacture has not been made out sufficiently to justify the prohibition (whether nationally or internationally) or any drastic re-organisation of an industry which, as shown later in this Memorandum, is essential to Imperial Defence. If the Royal Commission arrives at a similar conclusion the question of definition becomes academic.

PART II.

THE NATIONAL ASPECT.

9. Taking the various subjects mentioned in paragraph 1 of the Terms of Reference in the order in which they arise, the first to be considered is the practicability and desirability from the national point of view of the adoption by the United Kingdom

* Proposals for a modified set of categories have recently been accepted with certain reservations by the Committee set up by the Disarmament Conference at Geneva to examine the question of the Trade in and Private and State Manufacture of arms and implements of War. (See Disarmament Conference Document Conf. 100 of 12th April, 1935.)

alone of a prohibition of private manufacture of and trade in arms and munitions of war and the institution of a State monopoly of such manufacture and trade."

10. In dealing with the matter from the national point of view, the requirements of all three Defence Services, sea, land and air, have to be taken into account. In order to comply with the framework of this part of the Terms of Reference it is necessary to consider the practicability and desirability of the proposal from the point of view of both peace and war. This distinction however is a somewhat artificial one, since manufacture and trade in arms and munitions of war in peace, at present form an essential part of the nation's "war potential."

The essence of our system is that private firms should keep, in peace, a certain amount of plant in working order and at least a nucleus of skilled workers, thus ensuring a certain degree of immediate production in war. To encourage them to do this they must have orders in peace. Particularly in the case of the Army, Government orders are insufficient for the purpose owing to the vast difference between expenditure of ammunition and requirements of all kinds of war material in peace and war respectively. Hence the vital importance to us of trade. With this explanation we will turn to the practicability and desirability in peace.

A.—PRACTICABILITY AND DESIRABILITY IN PEACE.

11. The questions to be considered here are how far the peace-time requirements of the defence forces could be met by Government establishments in time of peace; and, if Government establishments are inadequate, how far it would be practicable and desirable to expand them to replace private manufacture.

PEACE-TIME SUPPLY.

12. NAVY.—In peace time the Admiralty rely chiefly upon private firms, not only for shipbuilding, but equally for armaments. Apart from dockyard-built ships, only a few special requirements, such as torpedoes and cordite, are manufactured to any extent in Government establishments. To a lesser degree transferable gun mountings, fuses and certain shell and ammunition components are obtained from the Royal Ordnance Factories, but other naval requirements, such as non-transferable gun mountings, hardened shell, armour, etc., are obtained from private manufacturers. Engines and air vessel forgings for torpedoes are also obtained from the trade. The filling of naval mines, gun ammunition, depth charges, etc., is carried out by the Royal Ordnance Factories in addition to filling for the Army and Air Force.

13. The numbers of warships under construction or on order from the Royal dockyards and private firms, respectively, in March, 1935, were as follows:—

TABLE I.†

Type.	In Private Yards.	In Government Yards.
Cruisers	8	5
Destroyers	25	NIL
Submarines	4	3
Sloops	7	4
Aircraft Carrier	1	NIL
Depot Ship	1	NIL
Other Craft	2	NIL
Total	48	12

New Ships to be ordered in 1935.

Cruisers	2	1
Destroyers	9	NIL
Submarines	2	1
Sloops	4	2
Depot Ship	1	NIL
Other Craft	1	NIL
Total	19	4

* Trade is dealt with as a separate item in paragraphs 71-74.

† Since this Table was prepared a few of these ships have been completed.—See revised Table, Appendix B, p. 646.

It will be noticed that at the present time the cruisers are being built in the proportion of 10 in private yards to 5 in Government yards; all destroyers in private yards; submarines in the proportion of 8 to 4 in favour of private yards; sloops, 11 to 6; and that the totals of all ships are in a proportion of over 4 to 1 in favour of private yards. If there should be any increase in naval strength, 95 per cent. of the new orders would have to be given to private firms.

This, however, does not represent the sole contribution that private industry makes to naval construction. The materials of which ships built in the Government dockyards are constructed, consist of manufactured or semi-manufactured articles. The steel ribs, girders and plates, engines, boilers, armour, part of the armament, non-transferable gun mountings, quantities of electrical and other auxiliary machinery, many of the instruments used for navigation, range-finding, etc., are manufactured by private firms. Broadly speaking, the Royal dockyards put in place the materials, all of which are supplied under contract by outside firms.

In terms of money the position is this. During the financial year 1935 the value of work on dockyard-built ships is estimated to be £2,193,902, and on contract-built ships £8,147,414, a total of £10,341,316. But in the case of the dockyard-built ships much of this money represents the value of the components mentioned above or of materials drawn from dockyard stocks. Conversely some of the components of the contract-built ships are supplied from the dockyards. A fair statement of the position may be taken to be that of the £10,341,316 to be spent on warship building in 1935, only about £268,500 will be spent in salaries and wages in the Royal dockyards or at Headquarters.

These figures do not include the cost of the armaments proper of the ships, their guns, ammunition, torpedoes, etc. The provision for this armament in 1935 is £1,372,000, and here again only a comparatively small part is spent on salaries and wages in Government naval or military establishments.

14. ARMY.—The War Office obtain many of their peace requirements from the Royal Ordnance Factories. They therefore rely to a lesser extent than the Admiralty on private firms for their normal peace-time requirements. Since the War and until recently the Army has been living to a considerable extent on war stocks and the orders available for the trade have been relatively small. During this phase, however, it was the custom of the War Office to place orders of a developmental or experimental nature with such civil firms as maintained the necessary plant or technical staffs. Private firms have undertaken such orders not only to keep their plant engaged, but in the hope of securing orders from foreign countries for similar types of articles and, as will be shown later, it is to our interest that they should do so. The position has, however, now been modified, and the time has passed when the Army can continue to live on stocks remaining from the war. Consequently in 1935/6 the War Office are getting practically all their tanks and the greater part of their shell from the trade. Among the classes of article for which the Army places orders with the trade, and which for the most part are not manufactured in any of the Royal Ordnance Factories, are the following:—Gun forgings; heavy coast defence mountings; heavy calibre armour-piercing projectiles; predictors; fire control instruments; searchlights; sound locators; tank engines; bullet-proof plate, armour plate and gun shields; armoured car chassis; motor transport; machine guns† and

* The Royal Ordnance Factories make forgings for head service guns up to 8 in., and can forge up to 9·2 in. (inner A tube). They can also make 4 in. H.A. and 4·7 in. naval mountings. They also make heavy coast defence mountings.

† Steps are being taken to lay out the Royal Small Arms Factory, Enfield, for manufacture of the lighter types. For the heavier types of machine guns we rely mainly on Vickers-Armstrongs, but the Royal Ordnance Factories are making a proportion of the requirements of Vickers 5 in. machine guns.

automatic guns; electric signalling lamps; and heliographs, and all signal and wireless stores. It will be seen, therefore, that the dependence of the Army on private manufacture in time of peace is very considerable.

15. **Air Force.**—The Air Ministry have no manufacturing resources* whatever and are entirely dependent on the various private firms in this country, except for such armament as is manufactured for them by the Royal Ordnance Factories or the Naval Torpedo Factory. Most of the firms which manufacture aircraft and engines for the Air Ministry also manufacture for civil aviation.

WHAT THE CHANGE WOULD INVOLVE.

16. From the above very brief summary it will be seen that if private manufacture of munitions of war were abolished and such manufacture was made a state monopoly, the state would require to undertake very large commitments in order to provide for the needs of the defence services even in time of peace. The discontinuation of supply during the period of transition, if, per impossible, a Government was so unwise to make the attempt, would be enormous, and is unthinkable at the present time when the Government has announced its intention to reconstitute our defence forces and defences.

17. For the Navy there would have to be a huge expansion of the Royal dockyards, since the existing capacity of the Royal dockyards is insufficient even for the relatively modest naval construction programme of to-day, when no capital ships are under construction. Existing firms which build men-of-war undertake mercantile work as well. A firm like Vickers-Armstrongs, which builds warships, also builds liners and other merchant ships, while other firms which are engaged normally on building merchant ships sometimes undertake to build warships. For example, the same firm that is completing the *Queen Mary* is also building a sloop for the Navy. As a rule the portions of the private works devoted to the building of warships are not, and cannot be, segregated. A merchant ship may be followed on a building slip by a cruiser, sloop or destroyer. After launching, the ships, whether they be merchant ships or warships, are completed and fitted out in the stream. These considerations show how difficult it would be for warship construction to be carried out in its entirety directly by the Admiralty, whether by increasing the capacity of Royal dockyards or by taking over capacity in private yards which may, from time to time, be devoted to building warships. It is inconceivable that it could be an economical proposition.

18. Presumably not even the strongest advocate of state monopoly would insist on the manufacture in state factories of the whole of the steel girders, plates and even propelling machinery and other components of H.M. ships which, although of a special character, are not dissimilar from commercial requirements. Even if, however, only the more warlike parts of a man-of-war, such as large gun mountings, armour plate, hardened shell and the innumerable articles of mechanical equipment, were to be manufactured by the state, the capital expenditure would be enormous. For example, the large gun mountings of warships could not be made at Woolwich without immense expenditure on plant and pits, and only a proportion of the small gun mountings are made there. Even the work at the Naval Torpedo Factory consists largely of working up and assembling parts supplied by ordinary engineering firms, and practically all explosives have to be obtained from private manufacturers, who also make explosives for mines, quarries and sporting use.

19. So far as the Army is concerned, owing to the smaller extent to which it depends on private industry, it would appear at first sight that, from the point of view of peace-time supply the abolition of private manufacture and the substitution of a state monopoly might be less impracticable than

in the case of the other two Services. Some means would have to be found, however, for providing the quantities of arms and munitions which the Royal Ordnance Factories do not produce in sufficient amounts, as well as the fairly formidable list of articles that for the most part are not manufactured in the Royal Ordnance Factories at all. (See paragraph 14.) The extent to which new government factories would have to be set up, therefore, would depend to a considerable degree on the definition of arms, *e.g.*, whether it included scientific instruments and components of arms and semi-manufactured articles, and it would be necessary to decide on a clear line of demarcation between what is and what is not a munition store. Even from the point of view of peace-time supply, therefore, the difficulties would be very great. In making arrangements for peace-time supply, however, it is necessary to envisage also the immense expansion of army requirements in time of war (over fifty-fold), and even as regards finished munitions, it is the policy of the War Office (and more or less of all the Defence Departments) to develop firms engaged in ordinary industry in order that they may be capable of producing war material in an emergency. For reasons which will be developed later, however, in dealing with "Practicability and Desirability in War" (paragraphs 61 to 70), in the early stages of a war, such measures are a supplement to, and not a substitute for the resources of the regular armament contractors.

20. In the case of the Royal Air Force the difficulties of imposing a state monopoly and prohibiting private manufacture in time of peace would be very great indeed, owing to the circumstances already mentioned—that there are no state factories of aircraft or engines. It would be necessary either to take over the existing private factories (which, as already mentioned, are for the most part concerned with civil as well as military aviation) or to start an entirely new system of state factories.

FLUCTUATIONS IN DEFENCE PROGRAMMES.

21. Apart from the above, there is another reason which renders very dubious the practicality and desirability (even from the point of view of peace-time requirements) of a prohibition of private manufacture of munitions of war and the institution of a state monopoly of such manufacture, namely, the fluctuations that occur in the programmes of the Defence Services.

22. Particulars are attached in Appendix II of the annual expenditure on the Navy and Army (including Ordnance Factories) from 1897 to 1914. In the case of the Navy the expenditure rose from £21 millions in 1897 to £31 millions in 1902. Then it rose in the next year to £35 millions, and in 1904 to £37 millions. There was next a drop in expenditure to £31 millions in 1906 and 1907. In succeeding years there was a series of sharp rises until, in the year before the outbreak of war, expenditure reached close to £49 millions (an £18 millions rise in six years).

23. Less unevenness appears in Army expenditure. In 1897 it amounted to £19 millions. Omitting the years of the South African War and its immediate aftermath, expenditure on the Army remained in the region of £27 millions from 1906 to 1911, rising to about £28 millions the year before the War.

24. Until 1932 post-war (not effective) expenditure on the Defence Services was, on the whole, steadier than before the War, mainly owing to the disarmament policy of successive Governments (see Appendix III). So far as the Navy and Army are concerned, expenditure was on the down grade from 1925 to 1932. Since then there has been a rise in the Navy and Army Votes:—

	Navy, £000,000	Army, £000,000.
1932	41.2	27.8
1933	44.3	29.3
1934	47.2	31.5
1935	55.4	36.6
(Estimated)		
1936	60.2	40.8
(Estimated)		

* The Royal Aircraft Establishment, Farnborough is devoted to experiment and research, not manufacture.

The Air Force Estimates rose from £8.6 millions in 1922 to £15 millions in 1925. After remaining fairly steady, i.e., between about £16 millions and £17 millions, from 1929 to 1934, they have risen in the Estimates for 1935 to £26.8 millions and for 1936 to £37.8 millions, and they will certainly rise a good deal higher. The reasons are set forth in the White Paper of March 4, 1935. (Cmd. 4827.) For the three Services the rise from 1933 to 1936 (estimated) is from £29.5 millions to £138.8 millions, a total of £49.3 millions or 35.5 per cent.—an enormous fluctuation.

25. From the above it will be seen that the same principle holds good in post-War as in pre-War years, namely, that expenditure on defence in time of peace is liable to wide fluctuations, as we are actually witnessing to-day.

26. The fact is that British armaments have to be adjusted to some extent to developments in the international political situation which are often due to internal events in particular countries. This leads to our proceeding by fits and starts. For years expenditure on the Defence Services may remain fairly level, or perhaps with a tendency to decline. Then, as is happening to-day, a Govern-

ment may decide that our security involves larger programmes, and another spurt is made.

27. Apart from developments in the international political situation our expenditure on the Defence Services may be affected, though to a lesser degree, by technical progress or new inventions, such as the dreadnought capital ship, the submarine, the tank, or the rapid growth of aviation. Technical developments are liable to lead to expenditure not only on the particular weapon, but on measures to counter it, such as anti-submarine and anti-aircraft weapons and appliances.

28. If schemes of international reduction and limitation of armaments could be arrived at there should, in theory at any rate, be greater steadiness in our programmes. It is far from certain, however, that in practice this would be realised. Nations do not always consistently maintain the permitted maximum of a Disarmament Treaty, and when they realise that they have fallen behind they will make a spurt—witness the naval expenditure of the United States of America and Japan (parties to the Washington and London Treaties), which in recent years was as follows:—

... Then, as is happening to-day, a Government ...				
		Prior to 1933-34.	1934-35.	1935-36 (Projected).
United States of America		About \$300 millions annually.	About \$450 millions (including N.I.R.A. funds).	About \$580 millions (including N.I.R.A. funds).
		1931-2.	1932-3.	1933-34.
Japan—			Yen (100,000's).	
Ordinary		138.9	140.8	178.8
Extraordinary		88.2	166.0	224.9
		227.1	306.8	403.7

Moreover, Disarmament Treaties usually include a "let-out" clause, and nations would certainly resort to it when the international situation became clouded. This might easily upset the whole balance of a Disarmament Treaty and lead to fresh "spurts."

THE GREATER ELASTICITY OF PRIVATE INDUSTRY TO MEET FLUCTUATIONS.

29. Appendix IV contains statistics of naval and military expenditure on armaments (Votes 9) over a series of years and shows the amount and percentage of the total allotted in each year with Government factories and trade respectively. The general trend of the figures is to show that the Admiralty and War Office maintained a fairly even load on Government establishments and that the effects of the fluctuations in expenditure fell as a rule more heavily on the trade. As a general rule, and subject to some exceptions, the trade's percentage rose when the total expenditure was rising, and fell when the total was falling. It may be more than a coincidence that, when the Defence Services were expanding, the trade's share of the increased expenditure rose so considerably, but these figures must not be pressed too far as evidence of the greater expansibility of trade as compared with Government establishments, owing to the fact that there are many contributory causes which affect figures on expenditure on Government factories and trade respectively. Weightier evidence of the superior expansibility of trade is to be found in a later section of this Memorandum dealing with war experience. (Paragraphs 54, 58, 59 and Appendix V.)

30. It is very doubtful whether Government establishments could ever achieve sufficient elasticity to enable them to grapple successfully even with the wide variations in peace-time programmes of armaments. Unlike the private firms, they could not turn to the manufacture of commercial products when orders for armaments were slack (at any rate not on any appreciable scale without drastic changes in our present political and economic system), nor could they very well undertake contracts for foreign governments. (See Paragraphs 99 to 101.) As an example of the adaptability of private industry, I am informed that a firm making armaments is using, for work in connection with a winding gear for a Dominion, a large vertical boring mill, which is an essential part of the plant for gun-mountings, etc. Again the forging plants of several firms have been

employed, in recent years, on the production of the new plant for the hydrogenation of coal, as I recently confirmed by inquiry on the spot at Billingham. The interchangeability of building ships for merchant ships and warships has already been noted, and the same principle applies to boilers and propelling machinery, to civilian and military aircraft and aircraft engines, and many other classes of work. Such elastic methods, particularly when combined with acceptance of orders for armaments abroad, enable skilled personnel to be retained and justify the maintenance of expensive machinery by private firms to an extent that would be wholly uneconomical in a Government establishment that could neither accept civilian contracts nor orders for armaments from foreign countries.*

31. It is difficult, also, to imagine that during years of stagnation in armaments Parliament would allow the state armaments establishments to be maintained on a scale sufficient to deal with the spurts in armaments that might occur some years hence. There might, of course, be political pressure from the Parliamentary constituencies concerned to avoid reductions—for one of the difficulties of state factories from the labour point of view is discharges—but it would be difficult to convince Parliament that the need for an increase could ever arise. Imagine, for example, how impossible it would have been from a political point of view during the post-War years of economy and disarmament for a Government to convince either itself, or Parliament or the nation that a considerably increased expenditure in material might be necessary in 1935, and that manufacturing resources far in excess of peace requirements must be purchased and maintained against that contingency. If the Government factories were not maintained on a scale to deal with an expansion of armaments in a long period of tranquillity the skilled personnel would gradually disperse, up-to-date machinery would not be procured and research would be adversely affected, so that when the spurt was necessary it could not be made. On the other hand, if the establishments were maintained on the scale of a peace-time peak

* Since this was written I have seen suggestions in the evidence that Governments could properly undertake to supply to foreign countries. There are, however, very grave objections to this, which are summarized in paragraphs 100-1.

year there would be a demoralising lack of work and uneconomical waste of effort in slack years: it should not be forgotten that 85 per cent. of our National Factories were scrapped after the War. It would be even harder to induce Parliament in quiet times to provide and maintain the war potential of the state factories on the requisite scale.

32. Private manufacture of arms and munitions of war, like Government industry, declines when short of Government orders, as has happened in recent years, but, for reasons already indicated, namely, orders from foreign countries, commercial activities, and connections with other branches of industry, it possesses greater elasticity than Government establishments possess or are likely to achieve. This consideration emphasises the objections to the prohibition of private manufacture from the point of view of peace time as well as war time supply of arms and munitions of war.

INVENTION, RESEARCH, DESIGN AND DEVELOPMENT.

33. There are strong objections also to the prohibition of private industry from the point of view of invention, research, design and development, which will now be stated.

34. All the Defence Departments, in varying degrees, obtain considerable advantages from the private firms in these matters. The private firms, which fulfil orders for British and foreign Governments as well as carrying out a good deal of civilian work, maintain technical staffs, and these are very helpful to the Defence Departments in the development of new equipments.

35. The Air Ministry, for example, attach so much importance to this in the rapidly growing art of aviation that they prefer to rely, as already mentioned, entirely on private industry both for aircraft and their engines, and do not maintain any state factories at all. In fact one cannot over-stress the importance to the Royal Air Force of a number of competing design staffs in the aircraft industry, which would not be retained under a system of state manufacture. It is the fierce competition between designers which alone can keep the Royal Air Force ahead of other nations, whilst aeronautical progress is still in so fluid and dynamic a state. A successful design means production orders—and that is the incentive which keeps the design staffs "on their toes." Only on a basis of locally competitive industry can this state of affairs—which is vital to the efficiency of the Royal Air Force and therefore to national safety—be secured.

36. The War Office also depends to a very large extent on private industry for the design of new types of weapons; for example, machine guns, automatic guns, tanks and all precision instruments. In the case of tanks the tendency in design is to utilise the most modern methods practised in industry, particularly suspension, transmission, gearing, etc., and private industry (Vickers, for example) is in a good position to deal with this.

37. A number of other firms, such as Firths, Hadfields, Barr and Stroud, and Imperial Chemical Industries Limited, maintain large technical research establishments embracing a much wider field than armaments, and are of importance to the Defence Services from the point of view of research. No organisation set up entirely under Government control could hope to give the service which is derived from existing arrangements.

38. It will be remembered that some of the most eminent Chief Constructors of the Navy before the War enlarged their experience by serving for a time with private armaments firms which built warships.

39. The loss to the three Defence Services in invention, design, development, in practical experience, in competition and in contact with industry would be very considerable if the proposals raised in Item 1 of the Royal Commission's Terms of Reference were adopted.

Note.

Since writing the above I have read in the evidence arguments to show that "competition is not an important factor in the armament industry either nationally or internationally" (Tenth Day,

page 237). It has been suggested, for example, that competition in the international field is of no value to us because the Government's policy is to place all armaments orders at home. Internal competition, it has been claimed, is discounted by the Government's policy of spreading orders, as well as by the rationalisation of industry, collusion between firms tendering for contracts, interlocking directorships and working arrangements between firms (Tenth Day, Appendix, paragraphs 40 to 52). Private manufacture also is alleged to endanger the secrecy of new inventions (Tenth Day, Appendix, paragraphs 88 A and B). Yet another argument has been built up to show that Government Departments, with their large resources, are in a better position than private firms to carry out inventions, research, design and experiment (Tenth Day, paragraphs 88 to 99).

The tendency of the evidence referred to above has been to suggest that private industry is almost valueless. Evidence from the opposite standpoint has been given which errs on the other side in suggesting that there is little or no incentive or encouragement to inventors in the Government Service* (Second Day, Question 336).

(2) Whatever may be the importance of the arguments on the question of the effect of competition on costs, on which I have no experience, there is no doubt as to the value to the State of competition in invention, research, design and development.

In the international field, for example, this has been demonstrated recently by the adoption by the Army Council of the Bren machine gun, the product of a foreign private firm. Although, of course, this weapon will be manufactured in this country, it was selected after a competition in which a leading British firm was the "runner-up." It provides, therefore, a striking example of the value of private industry from the point of view of competition.

(3) Illustrations of the value of private industry from the point of view of competition are also furnished by the experiences of the Air Ministry in connection with the design of aircraft. For example the Fox machine, which Mr. Falvey introduced into this country from America about ten years ago and which caused a revolution in British day-bomber policy, was a private design which proved to be an advance upon anything we then had. The most recent example of the kind is the Bristol 142 ("Britain First"), which was built as a civil machine to Lord Rothermere's order but has been adopted as a medium bomber for the Royal Air Force. There have also been instances in which the Air Ministry has rejected a firm's design, tendered to an official specification, but the firm has nevertheless built the machine to its own design, submitted it for competition, and obtained a contract. Examples are the Nimrod, which Hawkers entered for a competition with machines built to the official approved design, and the Wellesley, which Vickers built as a private venture in another competition. Whatever working arrangements may be made on the business side between firms manufacturing armaments, this does not extend (in many cases, at any rate) to invention, research, design and experiment, and in this respect there is a lively competition between private firms, which is by no means confined to the manufacture of armaments. As already suggested, the disappearance of the research resources of firms which, *inter alia*, manufacture armaments or their components, would be a very serious loss. Even in modern times a fairly long list could, if necessary, be given of weapons or munitions developed by private industry for all three Defence Services.†

* There would be no difficulty in refuting this suggestion, but, in view of the length of this Memorandum, I have hesitated to include yet another Annex. Evidence could be obtained if the Royal Commission so desired.

† See list handed in, of inventions developed by private industry, Appendix C, p. 646.

(4) On the supposed danger to secrecy of new inventions and designs involved in private manufacture I have consulted the Defence Departments, who are all satisfied that the arrangements made with the firms to provide against this risk have proved an effective safeguard.* In the background, of course, lies the Official Secrets Act. In each of the three examples quoted in the evidence (the Hadfield shell, the Gauntlet aeroplane which is being superseded by a later type and the Whitehead torpedo) the Government Department concerned considered the desirability of maintaining secrecy and decided that this was not required in the public interest. It would be interesting to know how secrecy would be better provided for under a system of Government monopoly, when the State establishments were manufacturing for foreign non-producing governments. The same question would arise for decision in the case of state establishments as arises to-day in connection with private industry, namely, whether in any given instance to allow them to supply foreign governments with their latest designs, and whether the interests of national defence allow, and to what extent, the results of costly researches in connection with armaments to be made available to others.

(5) On the question of whether research, etc., can be conducted better by the Government than by private industry my contention is that we require both. My belief is that there is advantage in encouraging invention and research in different environments. One man may work better in a Government Department, another in a university, a third in a private firm, and a fourth in his own laboratory. In the wrong environment genius may wither away. It is not every man who can do his best work in a Government Department. Even from the financial point of view there is, perhaps, greater freedom in undertaking expenditure on research, and especially on development, in private industry than in Government service, with its necessary concomitants of Treasury control of expenditure, Parliamentary Questions and Debates, Estimates, Public Accounts Committees, Committees of Inquiry, routine, etc. Is it probable, for example, that the Government would have brought to a practical stage within the same time the large-scale coal hydrogenation plant recently opened by Imperial Chemical Industries at Billingham? That was an example of that co-operation between the Government and private industry in these matters which is so desirable.

(6) In this connection I attach in Appendix VII a Memorandum by Mr. Francis Hemming, C.B.E., Secretary to the Economic Advisory Council, on the organisation of scientific research and the rôle of government in this field. The Memorandum has been read by the Secretaries to the Departments of Scientific and Industrial Research, the Medical Research Council and the Agricultural Research Council. From this it will be seen that in all the three great branches of civilian research—industry, medicine, and agriculture—it has been the policy of the Government not to concentrate their efforts exclusively in government establishments, but also to organise and encourage private researches by outside effort such as private institutions, associations, universities and individual research workers, and that government grants are made for this purpose, as well as, in the case of agriculture, for scholarships for the training of research workers.

(7) To concentrate research and development entirely in government establishments would run counter to this general policy which, as Mr. Hemming shows, has been pursued with so much success. That large-scale government research is essential in the particular field of arms and munitions of war, as in other branches of industrial research, is incontestable. But to cut short the

research work of the industries concerned would be to deprive the Government of a very valuable form of assistance. For as Mr. Hemming remarks:—

"Moreover, in the field of invention and design it is upon their own research departments that industrial firms must depend in the competitive struggle in which they are engaged with their rivals". (Appendix VII, paragraph 37.)

To deprive the State of this valuable result of competition—a competition, it should be noted, not confined to British firms but extending to foreign firms also—would appear an insane proceeding.

(8) For all the above reasons I submit that the elements in private manufacture of arms and munitions of war embraced under the headings of research, experiment, design, development and competition are of vital importance to the State, and that this is a factor to which the Royal Commission should give great weight in its recommendations on the first part of its Terms of Reference.

THE EFFECT OF THE CHANGE ON CIVILIAN INDUSTRY.

40. Incidentally to the desirability or undesirability in time of peace of the substitution of state manufacture for private industry another point arises which, I venture to suggest, might deserve examination by the Royal Commission, namely, the effect of the change on private industry as a whole. This is a matter on which I claim no expert knowledge, and I raise it merely in order that it may not be lost sight of. Evidently the principal source of evidence of this kind would be industry itself, which alone can have first hand information. It is hardly necessary to say that, in mentioning this subject as a possible field for investigation, I am far from advocating that the manufacture of armaments ought to continue because of the advantages obtained therefore by manufacturers in their private work. My object is only to suggest as a subject for investigation that, so long as armament manufacture continues, it is probably to the industrial and commercial advantage of the country that private firms should have a share in the work, whether in peace or war.

41. *Prima facie* there does appear to be a case for investigation. Obviously the more orders a firm obtains, the better its financial position would be, and it is all to the good if in addition the industries concerned derive technical advantage from armament orders. It would seem, for example, that the private construction of warships, whether for national purposes or for foreign countries, must help to carry overhead charges and so tend to strengthen the competitive capacity for commercial building of the firms concerned in the work. This was certainly true in 1914 when no less than 110 warships (of which 22 were for foreign account), including 21 capital ships (4 for foreign account) were under construction at one time. It is not impossible that in course of time similar conditions may again arise. Among the reasons for this advantage to industry as a whole are that warship work, by spreading overhead costs, may enable firms to quote lower prices for commercial orders; it should enable them also to acquire and retain skilled labour, which is of great importance in connection with commercial work, and help them to develop their general shipbuilding technique because the working out of new ideas in building warships lends in some cases to valuable progress in respect of commercial work. In addition work on naval construction, as already mentioned, spreads very widely throughout industry. Finally the standards of British Admiralty work demands the highest skill practised in the shipyards, and a rigid system of inspection should give to the operator a training which is unequalled in any class of mercantile work.

42. As *prima facie* support to this proposition attention is invited to an extract from an article written by Lord Weir for the Silver Jubilee number of *Engineering*. Referring to the period 1810-14 he writes:—

"The Navy and its needs were prominent in their demands on engineering and metallurgy in

* See also official evidence given on the Twelfth Day, Appendix I, paragraphs 27 and 35, and for Aircraft, Annex I.

a way which is not infrequently forgotten to-day, and the lessons learned in meeting naval requirements exercised a very wide and important influence on peace-time products and practice.

No one who reviews the period 1910 to 1914 can fail to be struck by the immense part played by what are termed 'armaments' in the general engineering of the time."

43. If engineering industry gains technical benefits from armament construction in time of peace, these advantages are likely to be intensified in time of war—but if mention is made of this aspect it must not for one moment be assumed that I am giving countenance to the monstrous proposition (if anyone could hold it in these days) that war is desirable because it might bring incidental technical benefits to particular industries! Merely as *prima facie* evidence, however, of the value of armaments orders to industry I quote some further passages from Lord Weir's article:—

"The lessons of the War and the experience gained in mass production have undoubtedly given force and direction to the structure and methods of post-War engineering and industry. The rigour of inspection on many War period products established standards of shop practice which have been absorbed into the daily routine of numerous establishments to their great advantage. The analysis of process necessary to permit of the use of unskilled labour has also had a permanent and directive effect on all classes of repetitive manufacture. To all these influences the machine makers of our country have ably responded, and accordingly their designs to-day are second to none. Another development on which the War acted as a catalyst was the production and use of new materials and especially the steels of different characteristics according to their specific uses."

* * *

"The War contributed also to the development of the Diesel engine, and the experience gained in submarines was reflected in a rapid improvement in various designs and its increasing adoption for cargo and passenger vessels, while its latest application to road traction opens up a field of vast extent."

* * *

"In the sphere of transport and communication we find one of the greatest and most important effects of the War. The aeroplane was in its infancy in 1910, but its intensive development during the War period placed it in a unique position, and to-day the new fields which are unfolding before the inventor and engineer in this department of activity make present achievements seem almost negligible."

44. Among the industries in which one might expect to find that orders for war material are important are shipbuilding and marine engineering, aeroplanes (including their engines) and aeroplane instruments, tractors (especially six-wheelers, caterpillars, etc.) and scientific (including optical) instruments.

45. As a layman I should expect the result of an inquiry to show that the assumption by the Government of a monopoly of the manufacture of arms and munitions of war would be a disadvantage to the general industry of the country, the extent of which I do not pretend to estimate.

B.—PRACTICABILITY AND DESIRABILITY IN WAR.

46. We come now to the practicability and desirability, from the national point of view, of the adoption of a prohibition of private manufacture of arms and munitions of war and the institution of a state monopoly of such manufacture, from the point of view of war-time necessity.

47. The experience of the Great War 1914-18 showed that in a major war the needs of the forces engaged can only be met by a huge system of national mobilisation of industry. All the nations

engaged suffered in some degree in the early stages of the War from inadequate preparation in this respect. The Central Powers suffered least because they were better prepared for war in this as in other respects. We suffered most, so far as the Army was concerned, because (partly owing to the early failure of our Continental allies) we were compelled to expand our forces from a small nucleus to an army on the Continental scale.

48. Every nation has taken this lesson of the War to heart, and all over the world we hear of huge schemes of industrial war mobilisation. Arrangements are being made in most countries for a complete and rapid mobilisation of industry for the supply of war material in the event of war. Enabling legislation has been enacted in some countries, and in several the individual citizen has assigned to him in time of peace his war post. In this matter, of course, the "authoritarian" state is at an advantage owing to the extent of the control it exercises over both organised industry and the individual citizen. These developments abroad make it the more important that nothing should be done to decrease our own "war potential."

49. With the experiences of twenty years ago still fresh in the memories of many people, no one would willingly contemplate that our forces should be liable to be sent on active service without doing our utmost to ensure to them an adequate and continuous supply of war material. The question arises, therefore, as to the part which the private manufacture of arms and munitions of war would play in the event of such a calamity, and whether, by abolishing it and instituting a state monopoly of such manufacture, we should be worse or better off than we are to-day.

THE EXPERIENCE OF 1914-18.

50. Allegations have been made that the private arms firms broke down badly during the War; that their inefficiency and rapacity were such as to prove that reliance on them was the worst way to expand our supply of war material in time of war; that the prices charged contained an excessive profit; that the organisation and management of the works were inefficient; that their existence was not a source of strength but a source of weakness; that our dependence upon private munitions manufacturers was of no value to us and nearly lost us the War.

51. These charges form part of the case against allowing private manufacture to continue. It seems desirable, therefore, to examine the extent of the failure of private manufacture in the War 1914-18, the circumstances in which that failure took place, whether it was due to the private firms or to causes beyond their control, and how far these causes affect the question of the future.

52. Some attempt has been made to examine this question in its main outlines, though not in great detail, and the results are set forth in a separate Memorandum which is reproduced in Appendix V. A summary is given in the following paragraphs.

SUMMARY OF EXPERIENCE IN 1914-18. (APPENDIX V.)

53. The worst failure of private arms manufacture occurred in 1914-15 in respect of the delivery of shells, which are taken in the Memorandum in Appendix V for purposes of illustration. The failure took the form of inability of the private firms to make deliveries of ammunition by the dates specified in their contracts, or even by the later dates anticipated by the War Office. During the early months of the War, therefore, and indeed up to the middle of 1916, though on a decreasing scale, there was a grave and dangerous shortage of shells for the Army.

54. It is shown in the attached Memorandum, however, that even during the first and worst nine months of the War the private firms, though badly in arrears on their contracts, gave a considerable output. Up to the end of May, 1915, they had supplied for the four principal types of ordnance then in the field (18-pdr., 13-pdr., 4.5-inch How.,

60-pdr.) amounts almost as large as the total reserves on hand at the outbreak of war. Their output during the same period was more than 24 times as large as that of the Royal Ordnance Factories, notwithstanding that for the five years before the War the orders given by the Government for gun ammunition to the trade had been only about one-third of the orders given to the Royal Ordnance Factories. In 1914 private manufacture produced two-thirds and in 1915 three-quarters of the total output of empty shells at home. It is shown that, while the Royal Ordnance Factories estimated their capacity much more accurately than the trade, they were only able to supply a fraction of our needs; that with some exceptions orders given in Canada and the United States of America also fell considerably into arrears; that apart from the armaments trade, private firms could not tender or make delivery in those early days; and consequently that, notwithstanding their serious arrears, the trade was in fact the principal source of supply even of shells, and that without it we should probably have suffered disaster in the first year of the War.

55. The Memorandum then goes on to discuss the reasons for the failure of the trade to deliver the goods by the contract dates, and mentions the following as the principal direct causes—labour, machinery, sub-contractors. Each of the causes is shown to have been beyond the control of the industry. The labour shortage was due to factors within the sphere of possible control of the Government, but not of industry, such as the recruiting of skilled labour for the Army, and the inability of the Government to enable the industry to replace it in time. In addition, notwithstanding the strong patriotism of all concerned on both sides, the industry itself was unable in the early months to make the best use of its labour by securing the suspension during the War of such hard-won trade union rules and practices as tended to restrict output, and when, early in 1915, the Government took the matter up they were at first unsuccessful. The second cause, lack of machines and machine tools, and especially of jigs and gauges, was due firstly to the limited capacity of the home industry and, secondly, to delays in delivery from the United States of America. Sub-contractors failed in their deliveries from causes akin to those which were hampering the armament firms themselves, and which were accentuated in their case.

56. A passage is quoted from the *History of the Ministry of Munitions*, which shows how the critics of the War Office failed to take into account the circumstances which had brought about the breakdown of supply and how much the armament firms did to educate sub-contractors, enabling them "in the summer of 1915 to organise their own resources on a wider and more independent basis." The quotation concludes as follows:—

"The time needed for the creation of new capacity, though uniformly disappointing the expectations of those responsible, differed little in fact from that which the large experience of the Ministry of Munitions showed to be the normal time required for the development of bulk output from new sources of supply."

57. The Memorandum then deals with a number of subsidiary causes of the failure, which include:—

(i) The vast programme undertaken by the armament firms on behalf of the Navy—the first line of defence.

(ii) The reasons which gave the Navy a claim for first priority.

(iii) The lack of any Government plan before the War for an expansion of the Army or for industrial mobilisation, which resulted, *inter alia*, in so warning being given to the trade as to what would be expected of them in war.

(iv) The vicarious and "hand-to-mouth" character of the orders given by the Government to the trade in the early months of the War, due partly to miscalculation (shared by all nations) as to the rate of expenditure of ammunition, and

partly to the delays in deciding on the scale of the ultimate expansion of the Army: all of which made long-range planning by the armament firms impossible.

(v) Lack of experience in the armament firms, as in the War Office itself, for estimating for an expansion of output on a vast scale.

(vi) The unsatisfactory organisation of the Government itself, resulting in conditions which made the work of the arms industry difficult. For example, there was no organisation under the Committee of Imperial Defence such as exists to-day for the co-ordination of either man-power or supply.

58. The Memorandum ends by citing some of the positive achievements of the trade during the War, including:—the construction of a vast new fleet of nearly 1,000 ships for the Navy; the supply to the Army of 25,500 guns out of a total of 31,332 guns; 73 million out of a total of 162·5 million shells (the trade being easily the principal source); 239,840 machine guns; 1,946,068 out of a total of 3,054,236 rifles, and most of the small arm ammunition; the supply of 53,891 aeroplanes and seaplanes compared with 1,202 produced by the Government, and 41,034 aero-engines out of a total of nearly 58,600 from all sources (the balance being obtained from manufacturers abroad).

CONCLUSIONS DRAWN FROM THE WAR.

59. The conclusion I draw from this examination, so far as I have been able to pursue it, is that the failure to make delivery by the contract dates in 1915 was due to new factors, which arose after the contracts had been made, and nearly all of which were outside the control of the trade; that the Government were at least as much responsible as the industry, but that the circumstances of the day were such, owing to lack of foresight, that no one could have succeeded; that even during the days of its worst failure the trade was the mainstay of our output of munitions; that the trade's power of expansion proved far greater than that of the Royal Ordnance factories; that the industry rendered inestimable services to the Navy, our first line of defence; that practically all our aircraft and the greater part of our aero-engines were obtained from private industry; and that without the trade we should probably have lost the War.

60. I am confirmed in this latter opinion by the following remark with which Brigadier-General Sir J. E. Edmonds, the Official Historian of the War in France and Flanders, opens some notes which he prepared at my request (and of which I have made extensive use):—

"The private armaments firms saved the situation in 1914-18."

That there cannot be much wrong with the principle of private manufacture from the point of view of efficiency is shown by the fact that both France and Germany (the most successful of the belligerent nations in armaments production) relied on private firms to a great extent.

"In the days of Wilhelm I of Prussia," writes General Edmonds, "the position of Krupp was considered with a view to taking it over; but it was decided to leave it in private hands, with, I believe, a controlling interest."

SOURCES OF SUPPLY IN A POSSIBLE FUTURE CONFLICT.

61. It is a not unnatural deduction that, if private manufacture was essential to us twenty years ago, it would again be essential if at any future time we were forced into a major conflict. I do not rest my opinion that this is the case, however, solely on past experience, but on studies of possible future emergencies, extended over many years. The experiences of the War in the matter of supplies, as in all branches of Imperial Defence, were carefully recorded during the War under instructions issued by authority of the Prime Minister (Mr. Asquith) in July, 1916, and were compiled after the War in accordance with instructions from the War

Cabinet dated 29th November, 1918. Shortly after the War a special Sub-Committee of the Committee of Imperial Defence was set up to study this question, and a comprehensive organisation known as the Principal Supply Officers' Committee (with numerous Sub-Committees) has been created for the co-ordination of the supply arrangements of the three Defence Services and other Departments concerned in time of war. Although much planning has been done, the available funds have been limited, and the progress made in this branch as in other branches of our defensive preparations in circumstances which are discussed in the White Paper on Defence of March, 1935, has been inevitably restricted. Steps have now been taken to speed up this work. However this may be, it may be assumed that the problem of expansion of supplies in time of war has been carefully studied in the light of war experience; that there is already in existence a very active organisation under the control of the Committee of Imperial Defence by which the arrangements of the Government Departments for the contingency of war are concerted in time of peace; and that developments would take place in accordance with pre-arranged plans in the event of a conflict. It is desired to emphasise, however, that some system of Government control over the supply of armaments and munitions in time of war is a fundamental assumption in this evidence.

62. In a future conflict the possible sources of supply of war material* would, as in the War, 1914-1918, be as follows:—

- (i) Stocks accumulated in time of peace;
- (ii) Purchase from abroad;
- (iii) Government establishments expanded from their nucleus;
- (iv) Private manufacture (the normal contractors) expanded from their nucleus;
- (v) Adaptation of civilian factories for production of war material, which is especially important for the Army owing to the huge expansion of Army requirements in time of war.

Before discussing these it is desired to emphasise the vital necessity in the difficult business of war supply of the Government's having a free hand to organise industry of all suitable kinds in peace. In so doing they would be impossibly handicapped if they were forbidden to place armament orders with private firms before war had actually commenced. It would be manifestly absurd that they should be obliged to organise in peace the wartime supply of essential arms, without being free to place a single order for such arms with our potential suppliers.

(i) Stocks.

63. Ideally, the reserve stocks accumulated in time of peace ought to be sufficient at the outbreak of war to tide us over until such time as industry can achieve the output necessary to maintain the Forces. Actually, the amount of the stocks that can be so accumulated is in most instances limited by such considerations as expense (the principal factor), cost and difficulties of accommodation and maintenance, small turnover in peace time, the wastage involved in replacement—whether owing to deterioration or obsolescence. Although, therefore, reserve stocks can be relied upon to fill a gap on the outbreak of war, the gap must be a restricted one and other measures for the expansion of supplies must come into operation at the earliest possible moment.

(ii) Purchases from abroad.

64. In the War 1914-1918, as shown later (paragraph 94), the Allies made very important purchases from abroad, without which they might easily have been defeated. At present it would be unwise to count with confidence on large supplies from abroad, owing to the uncertainty of what the attitude of neutral nations, and in particular the U.S.A., might be towards such deliveries. This attitude would depend upon conditions that cannot be foreseen, such as the circumstances in which the war arose. It is, however, difficult to conceive this country being

involved in war except in fulfilment of some obligation for collective security, or to defend itself against aggression, or both, and in such circumstances we might obtain invaluable assistance from this source. Even if we could not obtain bulk supplies, we might be able to purchase some accessory that we urgently needed. Taking a long view, therefore, it is essential that nothing should be done which is calculated to close up this important source of possible supply, since this is one of the great advantages to be derived from sea-power. Nevertheless the uncertainty as to the receipt of supplies from abroad emphasises the need for the maintenance of private manufacture, which, in the opinion of those responsible is essential to the production of war material. It has to be borne in mind, however, that, even if we could get delivery of supplies of war material from abroad, as the War 1914-18 showed, would take time to develop. They would, generally speaking, not arrive in time to help us in the difficult early months of a major war, and would in the main consist of supplies of raw or semi-finished materials.

(iii) Government establishments.

65. As shown above in paragraph 13, the capacity of the Royal dockyards for expansion is limited, and it is certain that, expanded to the utmost, they still could not, even in respect of the classes of work for which they are fitted, meet more than a fraction of the needs of the Navy in a major war. Actually in the event of a major war, it must be anticipated that they would be mainly occupied with repair work. The Royal Ordnance Factories would, of course, expand very considerably in a major war, but, as in 1914, they could only supply a very small proportion of the Army's requirements, which might expand more than fifty-fold. The Air Force, as already mentioned, relies almost entirely on private firms. In paragraph 30 reasons were given for the belief that Government establishments have less elasticity for expansion than private industry even in time of peace, and this applies with even greater force in time of war. This belief is reinforced in paragraph 31 by some observations as to the political difficulties of maintaining Government establishments in time of peace on a scale sufficient to enable them to cope even with the need for rapid expansion which, as experience shows, arises from time to time under peace conditions. To maintain them on a sufficient scale to meet the expansion of a major war would be out of the question without a huge expenditure, and would be very uneconomical.

(iv) Private Industry. (The normal contractors.)

66. It has been shown that private industry possesses certain features rendering it suitable for expansion which are not present or ever likely to be present in Government establishments, namely, commercial activities and manufacture for export. These features greatly facilitate its powers of expansion for the emergency of war because they enable it to provide itself with machinery and, above all, with skilled labour and the higher technical staffs which must be actively employed in order to retain efficiency, on a scale almost impossible of attainment in Government establishments under peace conditions. It was by taking advantage of these powers of expansion that our normal contractors were able, as already shown, to make a huge contribution to our national effort in the Great War and probably to save us from defeat. These powers of expansion have decreased in the lean years that followed the War (except in certain respects, including aircraft), but they are still a most important factor. Moreover, they are likely to revive, since the orders that have already been given in order to carry out the Government's declared policy of reconditioning all three Services will automatically increase the war potential of private industry. On the other hand, these powers would be lost if the private establishments were abolished and replaced, at enormous cost, by State dockyards, arsenals and factories. From the point of view of supply in time of war, therefore, private industry is of enormous importance. Indeed it is desirable, from the point of view of expansion in emergency, that as many additional firms as possible

* Not arranged in order of importance.

should be added to the numbers of the normal suppliers in peace, even though they may devote only a fraction of their peace-time capacity to the production of munitions or their components.

(v) *Adaptation of civilian factories for production of war material.*

67. In a future major conflict we should, of course, do our utmost from the outset to adapt civilian factories which had not been brought into the number of our normal suppliers in peace to the production of war material, and much attention has been and is being devoted to this subject. But in spite of all our efforts it is certain that the mobilisation of civilian industry which has no experience as peace time suppliers cannot meet our needs in the early stages of a war, and that several months must elapse before large-scale production is reached. And even then there are many requirements for which (in the absence of some total change in our system) we must continue to rely on private armament manufacturers, since they alone are in a position to maintain the necessary nucleus of skilled and higher technical staff in time of peace.

68. On the credit side of our industrial mobilisation ledger the Royal Commission may assume that our Cabinet system for the control of our own war effort in general, and of supply in particular, would be better than it was in 1914; that our man-power would be better organised; that we should not allow the indiscriminate recruitment of skilled labour for His Majesty's Forces; that the situation in regard to raw materials would be known and prepared for; that we should have greater knowledge of the potentialities of ordinary industry for conversion to the production of war material; that the Government would be in a much better position than in 1914 to help industry by supplying drawings and process manuals; that industry generally would be better informed of what was expected of it; that a better control over profits will be exercised; and that a great many detailed preparations would have been made. Against this improved organisation must be set new difficulties with which we should be confronted, some foreseen but not necessarily easy to measure in their effects (air warfare, for example), others (as in all wars) that we cannot foresee. The main difficulty, however, is that, however careful the organisation may be, the conversion of civilian industries into war industries, and bringing them to the point of reliable large-scale production, requires time.

69. To some extent, of course, the time can be shortened by providing special machinery in time of peace to firms that are to be diverted in time of war to the manufacture of war material. In practice, however, there are limits to the extent to which this can be done. The machines occupy a good deal of space, which, it is understood, is the reason why so much of the war machinery, jigs, gauges, etc., was scrapped by private firms after the War. Machinery must be kept in proper condition and renewed from time to time to keep it up-to-date. "No private enterprise can be expected to maintain a plant in stand-by condition merely because such plant may be needed by the Government in war."^{*} In some form, therefore, the cost has to be borne by the Government. In addition, if firms so equipped are to be able to undertake at short notice so skilled a business as, say, manufacture of shells and fuses, without running the risk of repeating the experience of 1916-17, when a proportion of our munitions proved defective,† they must be given some orders in time of peace, and this is the reason why it is important to add to the number of peace-time suppliers. And when all this has been done, ordinary industry, even

after heavy expenditure on both capital and current account, cannot be tuned up to a pitch at which it would of the outbreak of war provide a substitute for the resources in machinery, skilled personnel and experience of the firms engaged in peace in private manufacture of arms and munitions of war.

In a word the adaptation in emergency of ordinary industry, unaccustomed to peace-time supply, though essential in a major war, can never be an effective substitute, especially in the early stages of a war, for those private manufacturers of arms and munitions of war with peace-time experience.

(vi) *Conclusion.*

70. From the above it will be seen that at the outset of a major war we should have to rely on stocks accumulated in time of peace, supplemented by the output of Government establishments and regular contractors and both the latter would be expanded as rapidly as circumstances permit, but private industry possesses certain advantages in this respect, and is likely, as in 1914-15, to expand on a larger scale. Purchase from abroad cannot be relied on with any certainty, but might, in favourable circumstances, provide a valuable but rather belated supplement to our own efforts; the facility to purchase abroad, however, is one of the great advantages of command of the sea, and nothing ought to be done to weaken it. Everything possible must be done both by previous preparation and on the outbreak of war to expand ordinary industry as rapidly as possible for production of war material in order to meet the day-to-day requirements of the Defence Services; but whatever stage of completion our arrangements may have reached, this will take time. One reason why, in this system, private manufacture is of tremendous importance, is its capacity for ultimate expansion, as proved in the Great War. Another is that on the outbreak of war and until civilian industry, adapted to the manufacture of war material, can realise an adequate output, the normal contractors will be the only source to which we can turn as a "going concern" to supplement the output of our state establishments and the supplies accumulated in time of peace. To attempt to replace civilian industry by an extension of state manufacture would be a gamble which we cannot afford, especially at the present time. This, I have reason to believe, is the unanimous view on these matters of the responsible advisers of all the Government Departments concerned. Moreover, in the extraordinarily difficult business of war supply, it is vital that the Government should have a free hand to organise industry in time of peace and not be handicapped by the impossible provision that orders are not to be placed with private firms until after an outbreak of war.

C.—*TRADE IN ARMS.*

71. Foreign orders have always played an important part in our armaments and shipbuilding industries. In 1914 about one-fifth of the naval construction then being undertaken in British shipyards was for foreign account, and this included orders for four capital ships, costing many millions of pounds. The money thus received was nearly all spent in this country and must have gone some distance to pay for the overhead charges, not only of the armament firms, but of all the ancillary firms with whom they placed orders, whether for raw materials and its transport or for machinery, fittings and equipment. A statement in the House of Commons to the effect that some 80 per cent. of the money spent on shipbuilding in this country went in wages indicates the importance of this. Since the War, however, foreign naval orders have declined.

72. It is difficult to compare the foreign orders for land armaments received in this country prior to 1914 with those received since the War. In pre-War days it was mainly guns and ammunition that were exported, whereas, since the War, it is special equipment of a highly technical nature that forms the bulk of our orders. Until quite recently our armaments industry has been to an increasing extent

* Extract from the United States War Department's Statement of Policy, read to the Senate Munitions Committee on 21st December, and published in the *New York Times* on Saturday, 22nd December, 1934.

† For the terrible defects of our munitions in 1916, see pages 122-4 of the Official History, France and Belgium, 1916, Vol. I.

dependent on foreign orders, owing to the reduced demands on home account. These foreign orders are, however, decreasing in quantity, and orders for land armaments which were formerly placed in Great Britain are now being secured by our foreign competitors.

73. In the aircraft industry of Great Britain an export trade in aircraft and aeronautical material has grown up since 1925. This has stimulated the British aircraft industry and has led to increased orders and employment. Spread over the five-year period 1930-1934 the proportion of aircraft, aero-engines and spare parts exported represents from one-quarter to one-fifth of the total manufacture. A substantial sum of foreign money thus finds its way into British pockets and goes some way towards carrying the overhead costs of the aircraft industry, enabling firms not only to cheapen their prices, but to carry out work of a developmental and experimental nature. The loss of these foreign orders would react disastrously on the aircraft firms, some of whom would slacken off and thus reduce their capacity, while others would probably go out of business. This would seriously endanger the industrial nucleus regarded as essential for rapid expansion in time of emergency. It would also have a very serious repercussion on design. A further important factor in this connection is the value of technical information regarding developments abroad, which is at present obtained by aircraft production firms through association with foreign industry in the carrying out of foreign orders.

74. The value of foreign trade in arms and munitions of war to Imperial Defence has already been made clear in this Memorandum. The diminution in orders from abroad for sea and land armaments therefore is a matter of concern, though the increased orders (to which reference has already been made) from the Defence Departments must be a considerable assistance to private manufacture. If the needs of Imperial Defence are considered alone and apart from the other aspects of the question before the Royal Commission, the stimulus to private manufacture provided by any increase in orders from abroad would be very advantageous. Further restrictions in foreign trade would be deleterious.

Note.

Since this section of the evidence was written large orders have been placed with British firms in connection with the expansion of the Royal Air Force and the position has changed. On a long view, however, the importance of foreign trade is as great as ever.

A MORAL ASPECT.*

75. Enough has been said above to show the importance of trade in arms from the point of view of Imperial Defence. Much has been made, however, in some quarters of the possibility that war material supplied from this country may be employed against our own forces. At first sight this sentimental objection awakens sympathy in any generous mind, but when the matter is examined more deeply it is found to be outweighed by wider considerations.

76. In the first place it is improbable that the products of our private arms industry will ever be used against us on any large scale. Even in so vast a war as 1914-18 this was true. It may be doubted whether any completed British war material was ever used against us by Germany or Austria-Hungary, and not much, if any, by Bulgaria.

77. A case sometimes quoted is that of British guns mounted at the Dardanelles. The exact number was 13 British guns out of a total of 234 guns in these defences. Of these 234 guns, 102 are known to have been supplied by Krupp, and 6 by Hotchkiss. The remaining 113 were foreign guns probably of German make, 82 of them having been added to the defences between November, 1914, and March, 1915.

* There are, of course, other moral aspects of the question of trade in arms. This one has been dealt with here because it concerns the Defence Services.

78. Let us imagine, for purposes of discussion, that all the 234 guns had come from British arms. These firms would also have supplied the ammunition. We should have known exactly how much ammunition was available, and we should have been in a much better position to judge whether or not to renew the naval attack after our failure to force the Narrows on March 18th. As things were, we were ill-informed on this question and had no means of knowing how much ammunition the defenders still had in their magazines. In addition, our private manufacture of arms and munitions of war would have received the benefit of a large order, requiring a large amount of machinery and skilled personnel for its production, and the necessary jigs, tools, gauges and fixtures would have been available to increase output in war, all of which would have been of great value on the outbreak of war. Moreover, the prestige derived from this important contract would probably have led to orders from elsewhere. Our total resources in skilled labour and machinery for the production of war materials would have been increased to the great advantage of our allies and ourselves, and especially of the troops who suffered so severely from lack of heavy guns and ammunition. Even more important, however, if Turkey had been dependent on the United Kingdom, instead of on Germany, for her armaments it is exceedingly unlikely that she would have joined our enemies. She might have joined the allied and associated Powers. In either event it is very improbable that Bulgaria would have taken up arms against us.

79. To refuse foreign orders in time of peace would not confer any advantage on our own Defence Forces so long as such orders could be placed in foreign countries. Refusal of orders would merely decrease our own capacity to defend ourselves and increase the capacity of foreign countries. Our forces would obtain absolutely no benefit from such refusal and would only be put at a disadvantage by the reduction in our own capacity to supply them with war material. We should also deprive ourselves of the advantage, in the event of war with the country to whom we had furnished war material, of cutting off supply, which they might find difficulty in obtaining from other sources.

80. Before summarising the conclusions it will be convenient to deal with item (1) of the Terms of Reference to the Royal Commission from an international point of view.

PART III.

THE INTERNATIONAL ASPECT.

81. We turn now to the practicability and desirability from the international point of view of the adoption of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a state monopoly of such manufacture and trade. In this case it is more convenient to deal with all aspects at once—practicability and desirability, in peace and in war, including together manufacture and trade.

THE NECESSITIES OF STATES WITH INSUFFICIENT RESOURCES.

82. It will be recalled that Article 8 of the Covenant of the League of Nations, which is quoted in paragraph 3 of this Memorandum, specifies that due regard must be had "to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety". This consideration is very important from the point of view of the international aspect of the first item of the Royal Commission's reference.

83. The states "which are not able to manufacture the munitions and implements of war necessary for their safety" include most of the smaller states all over the world. In a major war some of the Great Powers, as we saw in the War 1914-18, may be in the same case.

THE CASE OF THE SMALLER POWERS.

84. Of the smaller states in Europe a considerable number came into existence during the nineteenth century. If the wars in Europe from 1815 onwards are examined it will be found that a large proportion were a struggle for liberty by oppressed nations against tyranny, oppression and even massacre. Into this category fall the wars for the liberation of Italy, the various revolutions and wars (beginning with the Greek War of Independence) which brought into existence or extended most of the Balkan States, as well as various unsuccessful revolutions, e.g., in Poland and Hungary. The causes of these peoples were often warmly espoused at the time by public opinion in this and other countries* and by many of our most famous and liberal-minded statesmen. In the end liberty could often only be won by the intervention of Great Powers, but such intervention was always slow and would never have been forthcoming but for the efforts of the oppressed peoples themselves. It is difficult to see how such struggles for liberty could have succeeded in the past, or could be achieved in the future, unless some source was available from which arms and munitions could be purchased.

85. It may be suggested that the days of the nineteenth century are past and that no new nations are ever likely to come into existence. It must be remembered, however, that the early days of the twentieth century, its first twenty years, extended the boundaries of several of the nations born during the nineteenth century, and brought into existence a whole crop of new nations or revived old nations, mainly as the result of the Great War.

86. However this may be, it is probable that the nations that have freed themselves could not have survived against the ever-present threat of their former oppressors unless facilities had existed in the world for obtaining war material of all kinds from which they could obtain the means to deter and, in the last resort, to resist aggression. What is true of the past is true of the present and the future.

87. There have been two main sources of supply available to the smaller nations, namely, the traffic in obsolete arms and the private munitions industries in the various countries.

88. From the following note, given me by Brigadier-General Sir J. E. Edmonds, the Director of the Historical Section (Military Branch), it would seem that before the War the former was the more important though certainly not the exclusive source for the armaments of the smaller nations:—

"As regards the sale of arms to minor belligerents by armament firms, thus promoting war, according to my knowledge—obtained many years back in 1886-1898—the amount of new material thus sold to possible foreign belligerents is small. The minor nations cannot afford to buy much new stuff. The traffic was in obsolete arms, put on the market by the greater nations, including Great Britain (after a decision in 1906, in Mr. Campbell-Bannerman's time). In 1899, I found that there were, among others, over 400 batteries of field artillery for sale (old pattern German). Eventually the Turks bought most of these, whilst the Bulgarians took old French guns. Actually the British Government in the South African War only bought from abroad a few Ehrhardt batteries and minor articles of munitions. It will be recalled that the guns used in the American Civil War were sold to France in 1870-1, in spite of the protests of Germany. President Grant evaded the international custom that Governments should not sell arms to belligerents as it is an unneutral act, by selling them first to an agent. In 1914-18 we bought obsolete rifles from the Japanese and other small nations; but had not enough even for drill purposes, much less battle."

* For example, in the Greek War of Independence "from all parts of Europe, money and volunteers were pouring in." (Alison Phillips, *Modern Europe*, p. 131.)

† In espousing the cause of Garibaldi, Lord John Russell "was supported by the public, by the press, by petitions of the great municipalities and by his two chief colleagues, Palmerston and Gladstone." (*Garibaldi and the Making of Italy*, p. 159, by G. M. Trevelyan.)

89. The same process has continued since the War, and there have been large sales by many countries of obsolete arms or war stocks. Nevertheless, for warships of all kinds, for weapons resulting from new developments in war material, such as aviation, anti-aircraft material, gas and gas-masks, tanks and mechanised warfare, generally, as well as for replacements, spare parts, fresh supplies of ammunition, explosives, and many other articles of war material, private manufacture and trade is the main source of supply. Without the trade, or some substitute therefor, the future of some of the small States would be precarious. Some of them live under the shadow of powerful states, within whose boundaries they were formerly included. Some see themselves threatened by irredentism; others by political, economic or religious systems that are repugnant to them. Some have formed alliances either with other countries of their own status, or with greater Powers, in order to increase their security. Most of them depend, in the last resort, for their security on the League of Nations or the Great Powers. But international action, even at Geneva, is often cumbersome, slow and uncertain, and every state believes that it must be able to offer some deterrent and some immediate resistance to an aggressor until aid comes. Moreover, any system of collective security, whether under the League Covenant or some other existing or future instrument, must be based in the last resort on the assumption that it can be supported effectively. This involves adequate peace-time armaments and the necessary means of increasing production in War.

90. Of course if the League of Nations can succeed in evolving methods for settling disputes without recourse to force, and these are proved by experience to be sufficiently reliable to enable nations to dispense with armaments as an element in their security, the private manufacture and trade in arms will dry up automatically. But that day has not yet come.

91. For the present, therefore, it is as necessary to-day as it was when the Covenant was written to have "due regard to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety." And if there are wars and revolutions in which the supply of war material to one or all of the belligerents may be open to strong objection, it is as well to remember that there are other cases in which it is essential to liberty.

THE CASE OF THE GREAT POWERS.

92. As already indicated, however, in paragraph 83 it is not only the small powers that may be dependent upon the private industry of other countries for their supplies of war material.

93. Less than twenty years ago the British Empire and its allies were fighting what they all believed was a war in defence of the liberties of Europe and a great part of the world. In the United States of America a similar view was widely held, as proved by the fact that on April 6, 1917, they associated themselves with the Allies. But long before that day the Allies were in great measure dependent on the supplies they were able to obtain from America and other parts of the world for the success of their cause.

94. The importance of these supplies is vividly brought out in the following passage from *Twenty-five Years*, where Lord Grey, writing years after the event, when he had leisure to weigh the whole matter, describes the situation:—

"To return to the question of contraband, blockade of Germany was essential to the victory of the Allies, but the ill will of the United States meant their certain defeat. After Paris had been saved by the Battle of the Marne, the Allies could do no more than hold their own against Germany, sometimes they did not even do that. Germany and Austria were self-supporting in the high supply of munitions. The Allies soon became dependent for an adequate supply on the United

States.* If we quarrelled with the United States we could not get that supply. It was better, therefore, to carry on the war without blockade, if need be, than to incur a break with the United States about contraband and thereby deprive the Allies of the resources necessary to carry on the war at all with any chance of success. The object of diplomacy, therefore, was to secure the maximum of blockade without a rupture with the United States.†

The importance that Lord Grey attached to American supplies may be judged from the price he was prepared to pay for them. He was willing to weaken and, if necessary, to carry on without that blockade which he realised "was essential to the victory of the Allies"—a fact which must have been all the more present to his mind writing, as he did, after the victory in which blockade had played so conspicuous and decisive a part. Some figures to show how vast were the supplies from the United States of America to the United Kingdom and the Allies are contained in Appendix VI. It will be noticed, for example, that as early as 1915 munitions of war to the value of over 39,000,000 dollars were sent; that this had risen by 1916 to nearly 420,000,000 dollars, and by 1917 to over 782,000,000 dollars. Nor was the United States of America the sole source of supply from abroad. Switzerland, for example, supplied 36,000,000 fuses in 1918 to the United Kingdom. All the above supplies came from private industry.

95. If private manufacture of and trade in arms had been prohibited internationally before 1914 and nothing had been substituted in its place, there is little doubt that we and our Allies, owing to the deprivation of overseas supplies of war material, must have lost the War, and with it our liberty, and in our case our Empire. Victory would have gone to the Powers that had concentrated on preparations for war, and sea-power would have lost half its value. Both we and our late allies, therefore, ought to look clearly at proposals that in 1914 would have produced that result or which would be liable to produce it in the future.

COULD GOVERNMENT MANUFACTURE AND TRADE REPLACE PRIVATE MANUFACTURE AND TRADE FOR INTERNATIONAL PURPOSES?

96. The question now arises whether the necessities of the nations with inadequate manufacturing resources, whether they be smaller states or Great Powers, whether in time of peace or war, could not be met by some means other than private manufacture: for example, by Government establishments in their own or in foreign countries.

97. If every small state is to establish arsenals capable of manufacturing all its requirements in peace or in war, the net result would be a huge world expenditure on armaments on a very uneconomical basis.† Even a Great Power like the United Kingdom, with large Government establishments devoted to the production of war material for the three Defence Services, finds it uneconomical to attempt to produce all its requirements in those establishments even in time of peace. For many small states it would be out of the question, owing to the varied nature of their requirements in the three elements of sea, land and air, the vast capital expenditure involved and the difficulty of keeping up to date in technical developments. Imagine, for example, how difficult it would be for some small

states with overseas possessions, to build all the warships they need. Apart from peace requirements, however, the small states would be confronted as are the Great Powers, by the tremendous discrepancy between the turnover of war material in time of peace and expenditure in time of war. The requirements of a week in war may be greater than the production of a year in peace.*

98. Even in the case of a large state with vast manufacturing resources, the difficulty of overcoming this discrepancy between peace production and war expenditure is surmountable only by piling up reserves of war material and by making large preparations in time of peace for industrial war mobilisation. But these methods are even harder in the case of a small state. If it is mainly agricultural it cannot hope, either by accumulation of reserves or by plans of industrial mobilisation, to meet its war deficiencies. Its only hope is to purchase from abroad.

99. The next question that arises, then, is whether the Governments of nations with large facilities for the production of war material might not supply the needs of nations less favourably situated, so as to facilitate the elimination of private manufacture. In theory this appears simple, but in practice there are strong objections even in time of peace, which become insuperable in time of war.

100. One objection is that competition would arise in time of peace between the Governments of arm-manufacturing states for orders from countries that cannot produce their own requirements. The incentive to obtain such orders would be very great, firstly in order to keep efficient the skilled labour and plant which, in the absence of outside orders, would be insufficiently occupied, and so to increase the producing nation's "war potential"; and secondly, in order to keep the orders away from some other nation whose "war potential" was a matter of concern to the first arms-producing state. A government of a country with a low standard of living or a depressed currency might offer to sell war material at a very low price. To compete with that price another country, whose financial position was stronger, might offer to accept payment over an extended period. From these forms of competition to offers of commercial treaties, political consideration or even alliances in return for large armaments orders is only a short step. The effects of a competition of this kind for orders between governments could hardly fail to be detrimental to international relations.

101. In time of war, and especially in an often prolonged period of strained relations preceding a war, the objection to belligerents having to obtain their supplies from neutral governments is overwhelming, as, under the traditional conceptions of neutrality, for a neutral government to supply war materials to a belligerent is an unneutral act. Even under the system of control governments are sometimes reluctant to allow their manufacturers to export arms to a country on the verge of war when its needs are greatest, with results that have sometimes been apparent. And the attitude of different governments in such cases has varied greatly in recent years, though in most cases a nation has been able to obtain some supplies for its defence. Under a system of government monopoly, however, the complications would be greater than ever, and

* The following extract from the United States War Department's Statement of Policy, read to the Senate Munitions Committee on December 21st, 1934, and published in the *New York Times* of Saturday, December 22nd, is of interest in this connection:—

"During the World War each machine-gun in active service fired forty-seven times more rounds, and each 3-inch field gun 180 times more rounds of ammunition than the peace-time allowance for the same period. Thus, based on World War experience, if the number of guns is increased tenfold, the expenditure of machine-gun ammunition will be increased 47,000 per cent., and artillery ammunition 180,000 per cent. These figures should give some idea of the quantity of munitions required in war."

* The italics are not in the original.

† Lord Grey of Fallodon. *Twenty-five Years*, Vol. II, Chap. 22, p. 103.

‡ Note.—Since writing this I have seen suggestions in the evidence that in practice the smaller states would not establish their own industries, as the burden would be too heavy. In other evidence, however, it has been stated that there is already a tendency for them to do so. The latter is true. Some of the Dominions even have started their own armaments industry. Australia has built warships and has a small but efficient arsenal. Although smaller states cannot render themselves independent of foreign supplies, they can become partially so.

the position of a government which had undertaken a large contract in normal times, or was asked to furnish supplies of ammunition or spare parts, would be extremely embarrassing in strained relations or war. It is unthinkable, for example, that while the United States of America was a neutral in the War 1914-18, their state factories could have been supplying ourselves and our allies with war material on the vast scale which proved necessary in 1914-17. No government could undertake to mobilise its industry on that scale for a foreign country. It is realised, however, that the situation created by such instruments as the Covenant of the League of Nations and the Briand-Kellogg Pact may involve changes in the traditional conceptions of neutrality, which would affect this point. Even if that should occur, however, a nation fighting for its existence, as we were compelled to do in 1914, might not feel much confidence in obtaining its essential needs from a foreign government with all the risks and uncertainties resulting from the international relations of that country, its internal political situation, the attitude of its Parliament, the influence of coming elections, and (especially in times of international unrest) the possibility that the government from which supplies are sought would require all the output of its dockyards and arsenals for its own defence services. In the conditions of a major war an untrammelled industry, such as existed in various countries in 1914-18, would seem to provide a more (though, of course, not entirely) reliable source of supply.

CONCLUSION TO PART III.

102. The general conclusion appears to be that from an international point of view the abolition of private manufacture and trade in arms and munitions of war would bear very hardly on "those members of the League which are not able to manufacture munitions and implements of war necessary for their safety"; that these nations may include not only most of the smaller states both in peace and war, but, especially in the event of a major war, some of the larger countries, including the members of the British Commonwealth of Nations; that it would be very difficult to satisfy the needs of smaller nations, even in time of peace, without private manufacture; that the attempt to do so would introduce a very undesirable element into international diplomacy; that in time of war the needs of the non-producing nations could under the traditional conceptions of neutrality not be satisfied without breach of neutrality, and that, even if the law of neutrality should be changed, private industry and trade would be likely to prove a more reliable source of supply than foreign governments for a nation fighting for its existence.

103. If and when a reliable international system for the preservation of peace is evolved, bringing with it a vast reduction of armaments, it may be that private manufacture of arms and munitions of war will languish and disappear for lack of orders. Until that time is reached its abolition appears to be fraught with dangers and objections, and a better course is to remove the possibility of any evil effects that may be proved to be attendant upon such manufacture by a system of national control on internationally agreed lines, which shall bear equally on the industries of all the nations concerned.

PART IV.

SUMMARY.

(1) If there were any question of prohibition of private manufacture of arms and munitions of war and the institution of a state monopoly of such manufacture, it would be essential to draw up accurate definitions of "arms and munitions of war" and "private manufacture". The question, however, does not arise unless the objections to

private manufacture and trade are proved to decisively as to justify this tremendous upheaval in our defensive system* (paragraphs 4-8).

(2) Private manufacture and trade in arms and munitions of war in peace at present provide an essential part of the nation's war potential. The essence of our system is that private firms should keep in peace a certain amount of plant in working order and at least a nucleus of trained workers, in order to ensure a certain degree of immediate production in war. Owing to the smallness of Government orders, especially in the case of the Army (owing to the great discrepancy between peace and war requirements), trade in arms and munitions of war is very important (paragraph 10).

(3) In peace the Navy is to a very large extent dependent on private industry (paragraphs 12 and 13). The Army, though relying less than the Navy on private industry, is dependent to a considerable extent on private firms, especially for a large amount of technical equipment (paragraph 14). The Air Force is wholly dependent on private industry for the manufacture of both aircraft and engines (paragraph 15).

(4) Even from the point of view of peace time supply of the Defence Services, the prohibition of private manufacture of arms and munitions of war and the institution of a state monopoly of such manufacture would involve the state in very heavy commitments. The extent of these commitments would depend upon the definitions referred to above in (1). The practicability of such a change becomes very dubious, even from the point of peace-time supply, when the extent of the present dependence of each Service on private manufacture is examined (paragraphs 16-20). Fluctuations in defence programmes, due to developments in the international situation, and to a lesser extent to technical progress or new inventions, accentuate the objections to the proposed change from the point of view of peace-time supply (paragraphs 21-28), as Government industry is not and for a variety of reasons is never likely to become sufficiently elastic to cope with such fluctuations, and is certainly less adaptable than private industry with its orders for foreign countries, its commercial activities and trade connections (paragraphs 29-33).

(5) A further strong objection to the prohibition of private manufacture and trade is the benefit derived by the Defence Services from the trade in matters of design, development, practical experience, competition and contact with industry (paragraphs 33-35).

(6) *Prima facie* it would appear as an incidental objection that the industry of the country would incur disadvantages from a change of system, financially owing to withdrawal of orders, which help to carry overhead expenses, and technically in the loss of experience gained from the construction and manufacture of naval, military and air armaments, which require a high degree of technical efficiency (paragraphs 40-45).

(7) In war the Defence Services are even more dependent on private industry than in peace. In the War 1914-18, even in the first stage when the Government persuaded the firms to undertake contracts beyond their capacity, which could not be completed by the contract dates (though, for reasons that were almost entirely beyond their control, a failure for which the Government and the people of the United Kingdom must take a full share of responsibility owing to lack of foresight and other causes) private manufacture rendered incalculable services to the nation and proved an indispensable source for supplies of all kinds (paragraphs 50-60).

(8) There is every reason to suppose that in any future conflict private manufacture would prove equally indispensable, not only for the production of supplies of all kinds throughout the war, but more especially in its early stages. At the outset of a major war we should have to rely on stocks

* Note.—Since this was written a study of the evidence of "grave objections" to and "evil effects" of private manufacture has been made in a second memorandum, and it has been shown that the whole case against private manufacture is non-proven and greatly exaggerated, and that the alleged "evils" would not be removed by government monopoly.

accumulated in time of peace, supplemented by the output of government establishments and the regular government contractors. Both the latter would be expanded as rapidly as circumstances permit, but private industry possesses certain advantages in this respect, and is likely, as in 1914-15, to expand on a larger scale. Purchases from abroad cannot be relied on with any certainty, but might in favourable circumstances provide a valuable but rather belated supplement to our own efforts: the facility to purchase abroad, however, is one of the great advantages of command of the sea, and nothing ought to be done, both by previous preparation and on the outbreak of war, to expand ordinary industry as rapidly as possible for production of war material, but, whatever stage of completeness our arrangements may have reached, this will take time. One reason why, in this system, private manufacture is of tremendous importance is its capacity for ultimate expansion, as proved in the Great War. Another is that on the outbreak of war and until civilian industry, adapted to the manufacture of war material, can realise an adequate output, the normal contractors will be the only source to which we can turn as a "going concern" to supplement the output of our state establishments and the supplies accumulated in time of peace. To attempt to replace civilian industry by an extension of state manufacture would be a gamble which we cannot afford, especially at the present time. This, I have reason to believe, is the considered view of the responsible advisers on these matters of all the Government Departments concerned. Moreover, in the extraordinarily difficult business of war supply, it is vital that the Government should have a free hand to organise industry in time of peace and not be handicapped by the impossible provision that orders are not to be placed with private firms until after an outbreak of war (paragraphs 61-70).

(9) Foreign orders to British firms for sea and land armaments have declined in recent years (paragraphs 71 and 72), but the aircraft industry has established an export trade since 1925 (paragraph 73). In view of the tremendous importance of private manufacture to Imperial Defence in time of war, if the interests of Imperial Defence are considered alone and apart from the other considerations put before the Royal Commission, the stimulus to private manufacture provided by any increase in orders from abroad would be very desirable. Further restriction of foreign trade would be deplorable from the point of view of war potential (paragraph 74).

(10) The alleged moral objection to the possible use against British forces of war material supplied by British firms to foreign countries, though serious at first sight, has little substance when examined in

detail. To refuse foreign orders in time of peace would confer no advantage on our own Defence Forces so long as orders could be placed in foreign countries. On the contrary, our own Forces would suffer from the diminution of our capacity to supply them with their needs in time of war (paragraphs 75-80).

(11) From an international point of view the abolition of private manufacture and trade would bear hardly on "those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety"; these nations may include not only most of the smaller states both in peace and war, but, especially in the event of a major war, some of the larger countries, including the members of the British Commonwealth of Nations; if private manufacture of arms and munitions of war had been prohibited internationally before 1914, we and our Allies would probably have lost the war. Most small states could never supply the whole of their needs in time of peace, much less in time of war; the attempt to make nations self-sufficient would involve huge and uneconomical world expenditure on armaments. It would be very difficult however to satisfy the needs of non-producing nations, even in time of peace, without private manufacture of and trade in arms and munitions of war; the attempt to do so would introduce a very undesirable element into international diplomacy; and in time of war the needs of the non-producing nations could not under the traditional conceptions of neutrality be satisfied without breach of neutrality (paragraphs 81-101).

(12) When a reliable international system for the preservation of peace is evolved, bringing with it a vast reduction of armaments, it may be that private manufacture of and trade in arms and munitions of war will languish and disappear for lack of orders. Until that time is reached their prohibition is fraught with grave danger and objection. A better course would be to remove the possibility of any evil effects attendant upon such manufacture, that can be proved, by a system of national control on internationally agreed lines, which shall bear equally on the industries of all the nations concerned (paragraphs 102-3).

(Signed) M. P. A. HANKY.

Committee of Imperial Defence,

2, Whitehall Gardens,

London, S.W.1.

20th May, 1935.

* Note.—But see the Second Memorandum of observations on the evidence against private manufacture and trade, where it is shown that the case has not been made out.

APPENDIX I

EXTRACT FROM THE INTERNATIONAL CONVENTION FOR THE SUPERVISION OF THE INTERNATIONAL TRADE IN ARMS AND AMMUNITION.

Geneva, June 17, 1925. (Cmd. 3448.)

CHAPTER I.—CATEGORIES.

ARTICLE I.

For the purposes of the present Convention, five Categories of arms, ammunition and implements are established:—

CATEGORY I.—ARMS, AMMUNITION AND IMPLEMENTS OF WAR EXCLUSIVELY DESIGNED AND INTENDED FOR LAND, SEA OR AERIAL WARFARE.

A. Arms, ammunition and implements exclusively designed and intended for land, sea or aerial warfare, which are or shall be comprised in the armament of the armed forces of any State, or which, if they have been but are no longer comprised in such armament, are capable of military to the exclusion of any other use, except such arms, ammunition and implements which, though included in the above definition, are covered by other Categories.

Such arms, ammunition and implements are comprised in the following twelve headings:—

1. Rifle, muskets, carbines.

2. (a) Machine-guns, automatic rifles and machine-pistols of all calibres;
(b) Mountings for machine-guns;
(c) Interrupter gears.
3. Projectiles and ammunition for the arms enumerated in Nos. 1 and 2 above.
4. Gun-sighting apparatus, including serial gun-sights and bomb-sights, and fire-control apparatus.
5. (a) Cannon, long or short, and howitzers, of a calibre less than 5.9 inches (15 cm.);
(b) Cannon, long or short, and howitzers, of a calibre of 5.9 inches (15 cm.) or above;
(c) Mortars of all kinds;
(d) Gun carriages, mountings, recuperators, accessories for mountings.
6. Projectiles and ammunition for the arms enumerated in No. 5 above.

7. Apparatus for the discharge of bombs, torpedoes, depth charges and other kinds of projectiles.

8. (a) Grenades;

(b) Bombs;

(c) Land mines, submarine mines, fixed or floating, depth charges;

(d) Torpedoes.

9. Appliances for use with the above arms and apparatus.

10. Bayonets.

11. Tanks and armoured cars.

12. Arms and ammunition not specified in the above enumeration.

B. Component parts, completely finished, of the articles covered by A above, if capable of being utilised only in the assembly or repair of the said articles, or as spare parts.

CATEGORY II.—ARMS AND AMMUNITION CAPABLE OF USE BOTH FOR MILITARY AND OTHER PURPOSES.

A.—1. Pistols and revolvers, automatic or self-loading, and developments of the same, designed for single-handed use or fired from the shoulder, of a calibre greater than 6.5 mm. and length of barrel greater than 10 cm.

2. Fire-arms designed, intended or adapted for non-military purposes, such as sport or personal defence, that will fire cartridges that can be fired from fire-arms in Category I; other rifled fire-arms firing from the shoulder, of a calibre of 6 mm. or

above, not included in Category I, with the exception of rifled fire-arms with a "break-down" action.

3. Ammunition for the arms enumerated in the above two headings, with the exception of ammunition covered by Category I.

4. Swords and lances.

B. Component parts, completely finished, of the articles covered by A above, if capable of being utilised only in the assembly or repair of the said articles, or as spare parts.

CATEGORY III.—VESSELS OF WAR AND THEIR ARMAMENT.

1. Vessels of war of all kinds.

2. Arms, ammunition and implements of war mounted on board vessels of war and forming part of their normal armament.

CATEGORY IV.

1. Aircraft, assembled or dismantled.

2. Aircraft engines.

CATEGORY V.

1. Gunpowder and explosives, except common black gunpowder.

2. Arms and ammunition other than those covered by Categories I and II, such as pistols and revolvers of all models, rifled weapons with a "break-down" action, other rifled fire-arms of a calibre of less than 6 mm. designed for firing from the shoulder, smooth-bore shot-guns, guns with more than one barrel of which at least one barrel is smooth-bore, fire-arms firing rimfire ammunition, muzzle-loading fire-arms.

APPENDIX II

NAVAL AND MILITARY EXPENDITURE, FOR YEARS 1897-1915.

EXTRACT FROM
STATISTICAL ABSTRACT UNITED KINGDOM.

Year.	Army (including Ordnance Factories).		Navy.	Year.	Army (including Ordnance Factories).		Navy.
	£	£			£	£	
1897-8	19,330,000	20,820,000		1906-7	27,765,000	31,434,000	
1898-9	20,000,000	24,068,000		1907-8	27,115,000	31,141,000	
1899-1900	43,600,000	26,000,000		1908-9	26,840,000	32,188,000	
1900-1	91,710,000	29,520,000		1909-10	27,326,000	35,907,000	
1901-2	92,542,000	31,030,000		1910-11	27,449,000	40,386,000	
1902-3	69,440,000	31,170,000		1911-12	27,649,000	42,858,000	
1903-4	36,677,000	35,476,000		1912-13	28,071,000	44,365,000	
1904-5	29,225,000	36,830,000		1913-14	28,346,000	48,833,000	
1905-6	28,850,000	33,300,000		1914-15	28,885,724	51,560,000	

APPENDIX III

DEFENCE SERVICES.

NET EFFECTIVE EXPENDITURE.*†

YEARS 1913-1934.

(in £ Millions.)

	Navy.	Army.	Air (excluding Civil Aviation).	Total.
1913	45.8	24.4	—	70.2
1914	100.4	236.7	—	337.1
1919	137.0	405.0	54.0	596.0
1920	84.4	156.8	20.3	261.5
1921	69.1	78.9	13.2	161.2
1922	47.3	41.5	8.6	97.4
1923	46.1	38.5	10.2	94.8
1924	47.7	35.9	13.7	97.3
1925	51.8	36.3	15.0	103.1
1926	48.9	35.4	14.8	99.1
1927	49.7	35.5	14.5	99.7
1928	48.7	32.5	15.5	96.7
1929	47.4	32.4	16.3	96.1
1930	43.6	31.4	16.9	91.9
1931	42.2	29.9	17.2	89.3
1932	41.2	27.8	16.3	85.3
1933	44.3	29.3	15.9	89.5
1934	47.2	31.5	16.8	95.5
1935	55.4	36.6	26.8	118.8
(Estimated)				
1936	60.2	40.8	37.8	138.8
(Estimated)				

* These figures do not represent total Budget Expenditure on Defence. They are simply the net cash expenditure (i.e., taking credit for excess receipts not appropriated in aid of Votes but surrendered directly to the Exchequer) from the three Defence Departments' Votes alone as shown in the published accounts. They accordingly exclude (i) "Allied Services" (i.e., Services rendered to the Defence Departments by the Civil Departments), (ii) Middle East Expenditure (the net cost of which has, since 1921 fallen on the Colonial and Middle Eastern Services Vote) and the £1.5 million grant in aid of the Defence of India starting in 1933.

† Revised to date, 8th May, 1936.

APPENDIX IV *

THE EFFECT OF FLUCTUATIONS IN DEFENCE SERVICES EXPENDITURE ON ORDERS TO GOVERNMENT ESTABLISHMENTS AND TRADE RESPECTIVELY

Figures are attached which show the total amount spent for Armaments (Votes 9) in the years 1905-6 to 1912-13 and 1920-21 to 1936-37 by the Admiralty and War Office, and the allotment to Government Factories and the trade respectively.

2. It will be noticed that the general effect (subject to a few exceptions in particular years) is that, when expenditure on armaments fell, the percentage to the total expenditure of the orders to the trade also fell. When expenditure was rising the percentage of orders to the trade nearly always rose.

3. Thus, in the case of the Navy, expenditure on armaments fell from 1905-6 (£2,553,000) to 1908-9 (£1,688,000) and the trade's percentage of the total amount spent fell from 47 per cent. to 34 per cent. There was a steady rise in expenditure on armaments for the Navy from 1908-9 (£1,688,000) to 1911-12 (£3,351,000) and the trade's share rose from 34 per cent. of the total to 55 per cent. Expenditure fell from 1920-21 (£6,049,000) to 1922-23 (£2,406,000) and the trade's share fell from 70 per cent. to 47 per cent. Exceptions to the general rule occurred in the years 1926, 1931, and 1932, but in other years it was maintained. By 1932 the total naval expenditure had fallen to its lowest point (£2,039,000) and the trade's share had fallen to 42 per cent., though on a falling expenditure it had been as low as 26 per cent. in the year 1930. Naval expenditure on armaments rose sharply from 1932 (£2,039,000) to 1936 (£7,511,000) and the trade's share of the total amount spent rose from 42 per cent. to 64 per cent.

4. The figures for the Army (Table B) also tend, again with some exceptions, in the same direction. The sharp drop in Army expenditure on armaments between 1905-6 (£2,681,053) and 1910-11 (£1,452,188) resulted in a fall in the trade's share from 52 per cent. to 34 per cent. By 1912-13 the total expenditure had risen to £1,682,336 and the trade's share to 60 per cent. After the War there were exceptions to the general experience between 1924 and 1928. But the sharp rise in expenditure between 1932-33 (£1,566,299) and 1936-37 (£6,413,500) resulted in a

rise in the trade's share from 37 per cent. to 71 per cent.

5. Another method of considering these figures is as follows.

TABLE A (NAVY).

The average yearly naval expenditure, including the forecast for 1935 and estimate for 1936, for the 24 years amounts to £2,963,000, of which £1,485,000 is allotted to Government Factories and £1,478,000 to the trade.

The maximum in any one year spent in Government Factories was £2,700,000 and the minimum £1,121,000; that is a fluctuation of £1,579,000.

The maximum in any one year spent with the trade was £4,811,000 and the minimum £367,000; that is a fluctuation of £4,244,000.

TABLE B (ARMY).

The average yearly military expenditure, including forecast for 1935 and estimate for 1936, amounts to £2,210,000, of which £1,179,000 is allotted to Government Factories and £1,380,000 to the trade.

The maximum in any one year spent in Government Factories was £1,849,000 and the minimum £842,600; that is a fluctuation of £1,007,000.

The maximum in any one year spent with the trade was £4,505,000 (estimated) and the minimum £107,000; that is a fluctuation of £4,458,000.

6. While the figures bear witness to the flexibility of trade they must be used with caution, as there are many contributory causes which affect the figures on expenditure in Government Factories and with the trade. For example, it is the policy of the Defence Departments to maintain, as far as possible, an even load on government establishments in order to obviate discharges of labour; policy as to the placing of orders may vary with different governments; types of weapons may be required which cannot be made in government establishments and must therefore be put out to the trade; or there may be a desire to foster the resources of the trade in order that they may be kept alive to meet an emergency.

TABLE A *

NAVY.

Statement of naval expenditure and percentage of money in each of the years shown on cross-axes (including guns, projectiles and ammunition, torpedoes and stores of an allied character), with Government Factories and private trade respectively.

Year.	Total Naval (Vote 9) Expenditure.	Spent in Government Factories.	Spent with Trade.	Percentage of total amount spent.	
				Government Factories.	Trade.
	£	£	£	Per cent.	Per cent.
1905-6	2,553,000	1,347,000	1,206,000	53	47
1906-07	2,444,000	1,351,000	1,093,000	56	44
1907-08	1,818,000	1,230,000	588,000	67	33
1908-09	1,688,000	1,121,000	567,000	66	34
1909-10	2,080,000	1,285,000	794,000	62	38
1910-11	2,438,000	1,350,000	1,088,000	55	45
1911-12	3,351,000	1,621,000	1,830,000	45	55
1920-21	6,049,000	1,833,000	4,216,000	30	70
1921-22	4,009,000	1,723,000	2,286,000	43	57
1922-23	2,406,000	1,281,000	1,125,000	53	47
1923-24	2,680,000	1,321,000	1,359,000	49	51
1924-25	2,608,000	1,432,000	1,236,000	54	46
1925-26	2,649,000	1,483,000	1,166,000	56	44
1926	2,235,000	1,124,000	1,111,000	50	50
1927	3,070,000	1,366,000	1,704,000	44	56
1928	2,911,000	1,689,000	1,222,000	58	42
1929	2,606,000	1,568,000	1,038,000	60	40
1930	2,336,000	1,502,000	834,000	64	36
1931	2,160,000	1,283,000	877,000	59	41
1932	2,039,000	1,176,000	863,000	58	42
1933	2,520,000	1,333,000	1,187,000	53	47
1934	2,773,000	1,481,000	1,292,000	53	47
1935	4,126,000	2,140,000	1,986,000	52	48
(Forecast)					
1936	7,511,000	2,700,000	4,811,000	36	64
(Estimate)					

* Revised to date, 8th May, 1936.

TABLE B.*

ARMY.

Statement of expenditure and percentage of money in each of the years shown on armaments with Government Factories and private trade respectively.

	Total Expenditure Vote 9.C.	O.F. Production for Army—Vote 9.	Trade Balance Approx.	Trade.
	£	£	£	%
1905-6	2,681,053	1,379,770	1,400,000	52
1906-7	2,307,826	1,154,794	1,243,000	52
1907-8	1,869,345	1,125,771	744,000	40
1908-9	1,677,103	1,161,314	516,000	30
1909-10	1,466,022	919,458	547,000	37
1910-11	1,452,188	966,074	486,000	34
1911-12	1,512,466	893,344	619,000	41
1912-13	1,682,336	841,528	841,000	50
1920-21	(a)	1,414,061	—	—
1921-22	1,381,143	1,274,461	107,000	8
1922-23	1,841,843	1,360,938	481,000	26
1923-24	2,364,526	1,206,573	1,158,000	50
1924-25	2,569,895	1,602,906	967,000	38
1925-26	2,267,848	1,504,568	763,000	34
1926-27	1,940,812	1,243,222	707,000	36
1927-28	1,787,454	1,123,811	664,000	37
1928-29	1,946,350	1,025,351	921,000	47
1929-30	2,124,941	1,096,056	1,029,000	50
1930-31	1,555,494	976,984	578,000	37
1931-32	1,740,751	1,092,086	648,000	37
1932-33	1,556,299	987,073	569,000	37
1933-34	1,714,254	1,076,147	638,000	37
1934-35	2,293,809	1,016,652	1,277,157	56
1935-36	4,800,000	1,363,300	3,436,640	72
(Forecast)				
1936-37	6,413,500	1,848,500	4,565,000	71
(Estimate)				

(a) The figure in the account is £5,742,394, but it is not to be relied on as it included large transactions from earlier years.

Note.—These figures are the best information immediately available. It will be noted that the comparison is between total expenditure (O.F. and Trade) under Vote 9.C and O.F. expenditure on the whole of Vote 9. It would take some time to separate the Vote 9.C element in O.F. expenditure; it represents roughly all but some £50,000 in each of the last 10 years.

APPENDIX V

NOTES ON PRIVATE ARMS MANUFACTURE IN THE GREAT WAR, 1914-18.

INTRODUCTION.

1. In the public controversy over the private manufacture of arms and munitions of war a good deal has been made of the failure of the armament firms in the War, 1914-18, and a tendency has been manifested to transfer to them the odium that it was formerly fashionable to cast on the War Office. It appears desirable, therefore, to examine, in as detached a spirit as possible, the history of that unfortunate episode, the extent of the failure, and the circumstances in which it occurred, in order, so far as possible, to ascertain the causes. That is the task attempted in this brief sketch. It is based almost entirely on the *History of the Ministry of Munitions*, which was compiled immediately after the end of the War. There is, of course, ample material in the official histories, as well as in various published memoirs, for a more ambitious account, and every point could be elaborated to a considerable extent. That task, however, would go beyond the scope of this Memorandum of Evidence, and no more is attempted here than to pick out the salient points bearing on the responsibility for the failure of the Trade to make deliveries by the contract dates. No attempt is made to deal with such charges as "profiteering" by the armament firms, which would appear to belong rather to the second and third items of the Terms of Reference to the Royal Commission. In any event it is a matter on which I have no knowledge.

2. From the point of view of actual supply in the War, the main case against the private manufacturers is that, especially in the early months, they failed to complete their contracts by the specified dates. This failure reached its zenith in the spring of 1915, when the shell crisis arose which led to the establishment of the Ministry of Munitions. Throughout the existence of the Ministry the production of

gun ammunition was by far the largest branch of its activity, accounting, as it did, for more than half its total expenditure.* Shells, therefore, are taken as the most conspicuous illustration of the failure of the regular contractors.

THE PRE-WAR SYSTEM OF IMPERIAL DEFENCE.

3. Prior to 1914 we relied for Imperial Defence mainly on the Navy, which had the duty of protecting the whole Empire against overseas invasion and of keeping open our maritime communications for the free passage of military reinforcements or trade. Consequently the demands of the Navy upon industry or labour enjoyed a definite priority over those of the land forces. The regular army was maintained mainly for the purpose of supplying garrisons for India and Egypt, as well as for the defence of the bases and fueling stations of the Fleet and mercantile marine against raiders. The strength of the regular army in stations abroad was maintained by a system of linked battalions, grouped in pairs, one at home and one abroad, which changed places from time to time. The battalions at home were organised to form an expeditionary force of six infantry divisions and one cavalry division. In addition, there were a number of Special Service units (formed out of the old militia) and maintained as depot battalions to supply drafts for the regular army in the event of war; and for Home Defence a Territorial Army organised in 14 infantry divisions and 14 mounted (Yeomanry) brigades, armed with obsolescent weapons.

4. As a purely defensive organisation maintained by a government firmly set towards peace and with no aggressive intentions, this arrangement worked satisfactorily at the outbreak of War. No British

History of the Ministry of Munitions, Volume X, Part III, page 115.

* Revised to date, 8th May, 1936.

territory in any part of the world was seriously invaded, and our sea communications were kept open. Until the submarine warfare against merchant ships (a war development) had worked up to its full intensity in the spring of 1917 we had no serious anxiety as to our sea communications. Raids, such as those on Scarborough and Hartlepool, and the activities of commerce destroyers, such as the "Emden" and "Königsberg," achieved no more than we had apprehended. In fact, our preparations were sufficient to enable us to fulfil our traditional role of maintaining command of the sea with losses no greater than in many previous wars.

PRE-WAR SUPPLY OF THE ARMY.

5. Some details are given in Annexes I and II of the sources of supply of the army for war material during the five years preceding the War. From Annex I it will be seen that the proportions in which orders were spread between the Royal Ordnance Factories and private industry were as follows:—

	Royal Ordnance Factories. Per cent.	Trade. Per cent.
Guns	80	20
Gun Ammunition, etc. ...	77	23
Small Arms	62	38
Small Arms Ammunition	48	52
Average	67	33

In the later years of the five-year period the proportion of orders to the trade had tended to rise, and in 1913 the average had reached 60 per cent. to Royal Ordnance Factories and 40 per cent. to the trade. In the case of gun ammunition, etc., in 1913 it was 62 per cent. to the Royal Ordnance Factories and 38 per cent. to the trade.

6. A list of the firms to which orders were issued during the five years preceding the War is given in Annex II.

WAR EXPANSION OF THE ARMY.

7. The failure of our allies, however, to sustain the shock of the enemies' attacks both on the Western and Eastern Fronts compelled us, practically from the outset of the War, to start the improvisation of a huge army which, including the Regular Army, the new (Kitchener) Armies, the Territorial Army, the forces of the Dominions (2 mounted and 10 infantry divisions), the Indian Army (excluding Indian forces retained in India), eventually reached 9 mounted and 87 infantry divisions.

8. The supply of this large army, scattered in many theatres of war, in addition to the widespread work of the Fleet (which necessitated huge construction programmes), and the building up of a large air force on an insignificant nucleus, proved a task of unprecedented magnitude and absorbed a great part of the manufacturing resources of the nation, especially those in the engineering industries. By the end of the War no less than 14,000 firms are said to have been engaged in the manufacture of war material.

THE RATE OF EXPANSION OF THE ARMY.

9. The forces available on the outbreak of war barely numbered 700,000, including the Territorial units, whose task was home defence. The plans for overseas operations contemplated only an Expeditionary Force of 6 divisions or about 150,000 men. On 25th August, 1914, Lord Kitchener announced that the War Office was aiming at "a total of thirty divisions continually maintained in the field." This represented a field army of about 650,000 men. In view of the steady tendency towards enlargement of the programme, the basis of maximum requirements for the 1915 campaign, as envisaged in the autumn of 1914, may be put at 1,000,000 men, or fifty divisions. Early in December, 1914, instructions were given that the measures necessary for the arming of a further 1,000,000 men should be taken in hand. In June, 1915, the newly-formed Ministry of Munitions were informed by the War Office that the

total demand had been increased to the figure required for the prospective figure of seventy divisions.*

10. It will be noted that the War had been in progress for more than ten months before this figure was decided on, which added enormously to the difficulties of those engaged in planning output, whether in the War Office or in the private munitions firms, since there were no plans in existence for meeting the demands of an army of these dimensions. Indeed, the scale of the effort involved was such as to create conditions which jeopardised the possibility of fulfilling the estimates of supply on the relatively modest basis laid down before the outbreak of war.

SUPPLY IN EARLY DAYS.

11. Some of the difficulties of supply in the early days of the War may be judged from the following quotation from the *History of the Ministry of Munitions*:—

"In the first year of the war there was not only no accumulated experience to guide estimates as to attainable rates of delivery, but two further conditions were superimposed; as the campaign developed the projected maximum scale of effort was itself rapidly enlarged, so that the maxima of one month became the minima of the next, while the unforeseen increase in the rate of consumption, especially in the case of gun ammunition, tended to widen the breach between output and immediate requirements.

"It was not possible therefore in the circumstances of the autumn of 1914 for the Army Council to lay down a programme of supply or define the requirements for the Expeditionary Force during the campaign of the following year, with the careful elaboration and reliability of forecast that was achieved when the munitions movement reached its zenith. Much painful experience was required before even approximate bases for calculation were available, and during the period we are now considering kaleidoscopic changes followed one another with a rapidity which falsified the whole basis of the programme."†

The same point is emphasised in a Memorandum by Mr. Wintour, who had been invited by the Secretary to the Army Council to formulate proposals for reorganising the Contracts Department:—

"Under the present system it has been difficult in many cases to obtain even an approximate idea of the extent of the orders which have to be placed in the future, and it is essential in any new scheme that provision should be made for preparing estimates showing probable requirements for three months, six months, and a year ahead. It is, of course, realised that rapid change of military plans makes it impossible to furnish any final estimates, but this in itself is no valid reason why rough estimates should not be prepared which would afford a sufficiently good working basis."‡

12. The difficulties confronting the War Office in these respects were necessarily passed on to their contractors. Even more than the War Office, the regular armament firms lacked "accumulated experience to guide estimates as to attainable rates of delivery" under war conditions demanding output on an unprecedented scale. As "the projected maximum scale of effort was itself rapidly enlarged" they were constantly required to increase the scale of their operations, as at the time there were few other sources of supply, and those limited, to which the War Office could turn in their need. Orders had to be still further increased owing to "the unforeseen increase in the rate of consumption, especially in the case of gun ammunition."

13. As the worst failure occurred in the case of shells, this example (as already mentioned) is used for purposes of illustration in these notes. The

* *History of the Ministry of Munitions*. Vol. I, Part I, pp. 11-12.

† *Ibid.* p. 14.

‡ *Ibid.* p. 70.

Royal Ordnance Factories, mainly for geographical reasons, were capable only of limited expansion in time of war, but were nevertheless able to bear the first brunt of the new demands.

14. During the first two months of the War, therefore, orders for gun ammunition were placed on a large scale with the armaments firms, and supplies from overseas (United States of America and Canada) were also arranged. During this period the Contracts Department of the War Office was inundated with offers of assistance from private firms. The Department was very ready to utilise such assistance, with the proviso that the firms were competent to tender on equal terms with the expert armament firms. Otherwise they were virtually restricted to supply of subsidiary munitions and accessories, or to sub-contracting for the firms able to undertake the principal contracts.

15. In October, 1914, a Cabinet Committee decided on a large expansion of gun orders, and it became clear that an enormous extension of the shell manufacturing capacity of the country would be required, and that this extended demand would involve the mobilisation of a large number of firms which had not hitherto had experience of munitions production, and which would require assistance, not only with equipment and buildings, but still more with technical advice and supervision.

16. The small number of experts at the Ordnance Factory were already overwhelmed with work, and in these circumstances it was decided to utilise the knowledge of armaments firms themselves and to rely on them for the allocation of the work among inexperienced firms.

"There was a good deal to be said for that view, because it is highly technical work, it is very difficult work, and it is skilled work. Although there are no better engineers in the world than you have in this country, these firms were without any experience at all of the kind of work the War Office required to be done. So it was thought better that the armament firms, who had got used accustomed to this class of work, should parcel out, as it were, the parts of the work which could be done even by inexperienced firms, leaving to themselves the more difficult and more delicate work, and also leaving to themselves the putting together of the various parts."*

The policy of the War Office at this time therefore fell under two heads:—

(1) the expansion of the regular armament work by means of subsidies granted by the Government—i.e., for the provision of additional machinery, extensions of works, etc.; and

(2) the extension of the usual system by which the chief armament contractors gave sub-contracts for single parts or processes to ordinary engineering firms.†

17. It was under this system that the failure of the armament firms to make punctual deliveries took place—a failure which placed our armies in jeopardy in the Spring of 1915 and hampered their effectiveness for months to come, until the Ministry of Munitions, formed by Mr. Lloyd George in June, 1915, took charge, reorganised the whole system, brought the whole of the resources of the government and of the nation to bear on the problem and gradually restored the situation—a very remarkable achievement.

18. It should be noted, however, that the system of relying on the armament firms had been evolved from past experience going back to the Crimean War, and had been deliberately confirmed after the South African War.‡

* Extract from a speech by Mr. Lloyd George on 21st April, 1915, quoted in the *History of the Ministry of Munitions*, Vol. I, Part I, pp. 101-2.

† *Ibid.*, p. 102.

‡ *History of the Ministry of Munitions*, Vol. VIII, Part I, Chapter I.

THE FAILURE (SHELLS).

19. To pursue the subject on a purely chronological basis would involve a more elaborate account than is possible in this Memorandum. The outline is to be found in the *History of the Ministry of Munitions*. It is proposed at this stage to pass on to the failure, to show briefly its extent in the case of the supply of shells, and to examine the causes. The failure was already foreshadowed by the end of the year 1914, and reached its zenith in the Spring of 1915, as shown by the following Table based on the *History of the Ministry of Munitions*, Volume I, Part I, Appendix III:—

TABLE I.

DELIVERIES OF SHELL BY HOME CONTRACTORS UNDER ORDERS PLACED BY THE WAR OFFICE.
POSITION ON 29TH MAY, 1915.

		Delivered.	Arrears.
12 in. ... H.E. ...	...	—	7,500
9-2 in. ... H.E. ...	...	7,082	18,993
8 in. ... H.E. ...	...	118	7,082
6 in. ... H.E. ...	...	123	50,077
...	S. ...	—	8,280
...	...	—	400
5 in. ... H.E. ...	...	4,573	25,427
...	S. ...	—	76,790
60 pdr. ... H.E. ...	...	37,804	49,930
...	S. ...	45,065	68,324
4-7 in. ... H.E. ...	...	2,546	8,750
...	S. ...	—	182,413
4-5 in. ... H.E. ...	...	57,430	134,447
...	S. ...	45,703	111,848
18 pdr. ... H.E. ...	...	8,132	100,000
do. complete rds. ...	...	—	625,908
...	S. ...	608,375	100,000
do. complete rds. ...	...	—	25,000
15 pdr. ... H.E. ...	...	9,307	238,593
...	S. ...	—	4,500
13 pdr. ... H.E. ...	...	23,133	137,755
...	S. ...	—	10,000
2-75 in. ... H.E. ...	...	2,629	1,371
...	S. ...	—	—
Total ...	...	851,960	2,022,380

20. The effect of this failure is shown in another form, which is easier to assimilate, in the following Table, which is reproduced from the *History of the Ministry of Munitions*, Vol. I, Part I, p. 42:—

TABLE II.

WEEKLY AMMUNITION OUTPUT IN AUGUST, 1915.
ACTUAL OUTPUT REALISED AS COMPARED WITH FORECAST CONTAINED IN THE MASTER-GENERAL OF THE ORDNANCE'S PROGRAMME DATED 13TH APRIL, 1915.
(PRINCIPAL NATURES ONLY.)

	Con- tractors' promises.	War Office anticipa- tion.	Require- ments.	Actual issues.
18 pdr. ...	420,000	215,000	211,463	108,000
4-5 in. How. ...	48,000	26,000	59,500	14,600
4-7 in. ...	8,400	8,000	6,030	1,600
60 pdr. ...	8,000	7,500	11,800	1,825
6 in. How. ...	14,000	4,000	2,240	2,333
8 in. How. ...	2,000	1,800	840	735
9-2 in. How. ...	3,200	1,600	1,120	492
	503,600	263,900	293,083	129,586

"This concise statement," says the *History of the Ministry of Munitions*, "contains the essence of the munitions problem as it was in the summer of 1915. It will be noticed that the War Office anticipation, to the correctness of which they explicitly refused to be committed, discounted contractors' promises approximately 50 per cent. The actual output, however, was only approximately half this reduced figure."

Actually the comparison somewhat overstates the deficit in delivery of shell, since issues of completed ammunition could only take place after the work of filling had been accomplished, a task which, for by far the greater proportion of the total supply, was

undertaken by the Royal Laboratory at Woolwich and not by the Trade.*

21. There were, of course, delays on other contracts besides shell, but the above examples are sufficient to prove that in the Spring and Summer of 1915 the private armaments firms were very much in arrears on their contracts.

22. Large as was the discrepancy between contract and delivery on the dates given in the Table, the actual accomplishment of the home trade even at this date was considerable, as may be judged by comparing the quantities of shell delivered on war contracts down to the end of May, 1915, with the total reserves on hand at the outbreak of war:—

TABLE III.

	Stocks at outbreak of War†	Deliveries by the home trade 29/5/15‡
18-pdr.—Shrapnel ...	654,480	608,375
H.E. ...	Nil	8,152
13-pdr.—Shrapnel ...	95,400	23,153
4·5-in.—Shrapnel ...	86,400	45,703
H.E. ...	43,200	57,430
60-pdr.—Shrapnel ...	16,800	45,065
H.E. ...	7,200	37,904
	903,480	825,682

It will be seen that, for the four types of ordnance mentioned, which at the time were the principal weapons of the field army, the trade had produced in the first nine months of the War nearly as much as the total reserve stocks with which the Army had entered the War.

23. Though the Government Ordnance Factories had, broadly speaking, fulfilled their contracts, within about 10 per cent., their total contribution was far lower than that of the trade, as shown by the following figures for May 29, 1915:—

TABLE IV.†

	Deliveries by the Ordnance Factories.	Deliveries by the Home trade.
18-pdr. H.E. ...	50,971	8,152
Shrapnel ...	124,345	608,375
13-pdr. Shrapnel ...	75,212	23,153
4·5-in. H.E. ...	34,509	57,430
Shrapnel ...	1,417	45,703
60-pdr. H.E. ...	5,278	37,904
Shrapnel ...	22,325	45,065
	314,057	825,682

It will be seen that the trade had produced more than 2½ times as much as the Ordnance Factories. This is the more remarkable when the figures for pre-war supply of gun ammunition are compared, as shown by the following Table:—

TABLE V.‡

Pre-War Supply of Gun Ammunition.

	Ordnance Factories.	Trade.
	£	£
1908-09 ...	360,152	96,708
1909-10 ...	271,779	25,019
1910-11 ...	328,062	112,181
1911-12 ...	332,751	304,073
1912-13 ...	321,940	199,297
Total for five years ...	1,614,684	567,278

* See *History of the Ministry of Munitions*, Vol. X, Part V, p. 10.

† Figures from the *History of the Ministry of Munitions*, Vol. I, Part I, p. 114.

‡ Ibid., Appendix III.

§ The home trade also delivered for the Army (and apart from Naval orders) about 20,000 rounds of ammunition for ordnance of 4·7 in. calibre and above, which was not manufactured by the Ordnance Factories at all.

¶ Extracted from Annex I. These figures are for total gun ammunition and not merely for the three principal types given in Table IV.

It will be noted, therefore, that for five years before the War the orders to the trade were only about one-third of those to the Royal Ordnance Factories, but that during the first and critical first eight months of the War the actual deliveries of ammunition for the four types of weapon by the trade were more than 2½ times as great as those of the Ordnance Factories. Actually the trade produced two-thirds of the total home output of empty shell in 1914 and three-quarters in 1915. (See para. 41 (4).)

24. I have examined above the failure to deliver empty shell in accordance with contract promises in the critical time during the early summer in 1915. Many of these estimates had been inspired by patriotic optimism and most of them had assumed more or less normal conditions in the markets from which they drew their supplies. It was hardly possible to envisage in advance the progressive difficulties caused by war conditions or to make full allowance for the time required to establish output momentum in newly organised shops, to install machinery and train personnel.

It is only fair to add that the failure of supply was steadily rectified during the succeeding months and that deliveries by home contractors rose from 42 per cent. of promises in September, 1915, to 52 per cent., 74 per cent. and 81 per cent. in December, 1915, March, 1916, and June, 1916, respectively. Moreover, it must be remembered that the increase of supply achieved by the Ministry of Munitions during the first nine months of its activities was very largely due to output secured from orders placed before it began operations. Thus of the total shell deliveries to the end of 1915, 13,746,433 were on War Office orders and only 2,714,468 came from sources developed by the Ministry of Munitions.*

25. The question now arises as to how we should have fared without the private contractors. Apart from them the possible sources of supply were:—

(1) the Royal Ordnance Factories;

(2) orders placed abroad;

(3) orders to private industry outside the armaments firms.

26. As Table IV shows, the Government Ordnance Factories, though estimating more accurately than the trade, did not provide more than a fraction of our needs or of our supplies.

27. Supplies from abroad (from private factories in Canada and the United States) were (with the exception of an important contract for 18-pdr. shell with the Bethlehem Steel Co.) considerably in arrears.

28. As regards outside firms during the early days of the War, many offers of assistance in munitions manufacture were received from manufacturers outside the regular private arms industry. But when it came to invitations to tender, almost the only tenders received were from the regular armament contractors, and a few tenders received from outside were too costly and too slow.† In these circumstances, as we have already seen, the War Office encouraged the private armaments firms to supplement their own limited resources by a system of sub-contracting. When we come to the causes of failure of the armament firms we shall find that the failure of sub-contractors was among the more important. If the inexperienced firms failed in sub-contracts, which were mainly in respect of the less complex parts of munitions, it is certain that (as the War Office anticipated at the time) the sub-contractors would have failed even worse at that time in any attempt to produce complete rounds, more especially as there was a shortage of samples, drawings, specifications and skilled inspectors.

29. It is not too much to say, then, that, great as was the disparity between contract and date of achievement, the armament firms, even in the worst days of 1914-15, were the principal source of supply

* *History of the Ministry of Munitions*, Vol. I, Part I, page 44 and Appendix IV.

† Examples are to be found in the *History of the Ministry of Munitions*, Vol. I, Part I, Chapter III.

even of shells, and there is little doubt that without them we should have suffered something approaching complete disaster in the first year of the War.

DIRECT CAUSES OF FAILURE.

30. We come now to the causes of the failure of the armament firms to deliver the goods by the proper dates.

31. The three more direct causes (though there were others which will be mentioned later) were:—

- (a) Labour.
- (b) Machinery.
- (c) Sub-contractors.

As will now be shown, none of these causes lay within the control of the private manufacturers.*

(a) Labour.

32. When the private arms firms accepted their early contracts they may fairly have assumed that an ample supply of labour, both skilled and unskilled, would be available. They were in good company in making this assumption, for the Government itself were anticipating widespread unemployment and created an organisation to deal with the prevention and relief of distress. These anticipations, however, proved incorrect. The Government proceeded to enlist for the army labour, skilled and unskilled, at first almost indiscriminately, and to a considerable extent even after the labour shortage was realised.

"By October, 1914, the engineering trade group lost by enlistment 12·2 per cent. of its male workers as compared with the period three months earlier. By February, 1915, this proportion had increased to 16·4 per cent., and by July, 1915, to 19·5 per cent., though this exodus was partially counteracted by the immigration of workers from other trade groups".†

33. The story of the efforts both by the armaments firms and by the Government to obtain skilled labour is a complicated one. Many mistakes were made, especially in the psychology of such recruiting. The efforts of the armament firms and of the Admiralty to recruit skilled labour from engineering and other firms were strongly resented, and was one of the causes which led firms in particular areas (Leicester, for example) to group themselves for acceptance of munitions contracts. It is sufficient to record that, in spite of the efforts by the Government to help the armaments firms to keep their men (by the issue of badges, for example) and, after the New Year at any rate, to replace their irreparable losses from other sources of labour, the supply of skilled labour during the period with which we are concerned always fell far short of the demand,‡ and as late as July 1, 1915, the demands for skilled labour at the Royal Factories and armament firms on the preference list remained as high as 14,030.§

34. Labour supply, however, was not the only labour difficulty under which the armament firms had to operate. In order to get the most out of the available plant it was necessary not only to avoid labour stoppages (which did not arise during the patriotic fervour of the early days) but to obtain a temporary suspension, for the duration of the War, of such trade union rules and practices as tended to restrict output.

"The suspension of restrictive rules and customs was justly regarded by the workmen as imperilling the most highly valued and hard-earned safeguards of his standard of living. It meant

the surrender of a system of defences built up, piece by piece, through the struggles of a century and it entailed sacrifice for which no compensation could be offered. It would be hard to name a more perilous field for even the most delicate advance of Government intervention".*

35. Yet this question, described later by Sir H. Llewellyn Smith as "the most difficult and delicate of all the matters with which the Board of Trade have undertaken to deal",† was left by the Government during five months of war (August to December, 1914) to—

"conferences of the normal type between the Employers' Federations and the Unions. The discussions led to no agreement within that period, and tended rather to prejudice the chances of success in the following months".‡

Even when the Government did intervene in January, 1915, they were not successful at first, and the so-called Treasury Agreement of March, 1915, in which their efforts culminated, failed to bring sufficient relief.

(b) Machinery.

36. Coming to the second direct cause of breakdown of private manufacture—inability to obtain delivery of machinery—the *History of the Ministry of Munitions* contains the following statement:—

"In consequence of the limited capacity of the home industry and the scale of requirements, it was necessary to have recourse to the United States of America, and the failure of American deliveries of machine tools to come to hand at the anticipated dates, proved a prime cause for the breakdown of the programme of ammunition output arranged by the War Office, the shortage of machinery being one of the excuses most frequently urged by contractors for their delayed deliveries."§ (Detailed illustrations are then given.)

(c) Sub-contractors.

37. The third direct cause of failure that of the sub-contractors, was due to some extent to the same causes as the failure of the main contractors. The tide of such surplus labour as was available set towards the main contractors, owing to the greater publicity given to their requirements.

"The sub-contractors were further hampered by the difficulty in securing deliveries of machine tools. Many of them, moreover, were new to their work and did not appreciate the high degree of accuracy required in shell manufacture, or the strictness of inspection, with the result that their products failed to pass the tests. They also suffered from the delays already mentioned in obtaining samples, drawings and specifications; and it is probable that the difficulty of obtaining immediate supplies of machinery and raw material bore more hardly upon them than upon the large firms."¶

38. The following comments in the *History of the Ministry of Munitions* on the criticisms urged at the time against the War Office are almost equally applicable to the criticisms directed to-day against the private armaments firms:—

"The critics of the War Office failed, as was natural, to take into account the circumstances which had brought about the breakdown of supply, which, since they arose from the unprecedented and unforeseen scale of the demand, must have been encountered in some degree by the men who undertook to organise the supply of munitions during the first year of the war, whether those men had been officials of the War Office or had held, from the first, an independent status. The policy, deliberately adopted, of organising the

* *Ibid.*, p. 30.

† *Ibid.*, p. 37.

‡ *Ibid.*, p. 30.

§ *History of the Ministry of Munitions*, Vol. I, Part I, p. 125.

¶ *Ibid.*, p. 126.

* See also extracts from a letter from Messrs. Cammell Laird, dated 5th October, 1914, quoted in the *History of the Ministry of Munitions*. Vol. I, Part I, pages 120-121, reproduced in Annex IV.

† *History of the Ministry of Munitions*, Vol. I, Part I, page 122.

‡ *History of the Ministry of Munitions*, Vol. I, Part II, pp. 28-9.

§ *Ibid.*, p. 109.

resources of the country through the armament firms, had much in its favour. The fact remains that the armament firms were at the outbreak of war the only firms with actual experience of munitions manufacture; ordinary engineering firms could not take up such work at a moment's notice when there was little or no organisation at headquarters for instructing and supervising them; and it was to a great extent the education in shell making which such firms received as sub-contractors to the armament firms which enabled them in the summer of 1915 to organise their own resources on a wider and more independent basis. Thus it does not follow, because the country in the summer of 1915 was ripe for industrial mobilisation on the lines followed by the Armaments Output Committee and the Ministry of Munitions, that such industrial mobilisation could have been successfully carried out in August, 1914.

Moreover, the shortage of ammunition—the primary reason for the handing over of supply to a new Department—since it was brought about by arrears of deliveries rather than by lack of orders was to a certain extent remedied by time alone. The real achievement of the War Office was the creation of capacity to meet the demands of the 30-division standard contemplated in the autumn of 1914; the true results of their labours are more fairly represented by the supply position of December, 1915, than by that of May, 1915. The time needed for the creation of new capacity, though uniformly disappointing the expectations of those responsible, differed little in fact from that which the large experience of the Ministry of Munitions showed to be the normal time required for the development of bulk output from new sources of supply.*

39. The critics of the armament firms have made the mistake with which the *History of the Ministry of Munitions* charges the critics of the War Office in failing to take into account the circumstances which brought about the failure to supply an unprecedented and unforeseen demand. The armament firms were given a task which was beyond their capacity, and which, with the wisdom that comes after the event, one can see ought to have been recognised as beyond their capacity. If the Royal Ordnance Factories, who carried out larger orders than the trade for British war material before the War, could not spare the experts to mobilise industry on a great scale, it might have been foreseen that the armament firms, which were themselves expanding on a large scale, would only be able to do this effectively to a limited extent. Moreover, as we have seen, the armament firms suffered both from the sins of commission by the Government in enlisting skilled labour for the force, and from its sins of omission in failing to realise earlier that the labour problem, which lay at the root of many of the difficulties, was a national concern, far beyond the scope of private firms.

INDIRECT CAUSES OF THE FAILURE.

40. There were a good many other factors which tended to limit the output of land armaments and ammunition by the private armaments firms, some of which have already been touched upon. They are summarised below:—

(1) Perhaps the most important cause of the failure was that the Government had no national plan for an expansion of the army, or for its armament. None of the problems had been worked out or thought of at all—exception from military service of skilled personnel, provision of skilled or unskilled labour, machine tools, raw materials, and national industrial mobilisation generally. Consequently, there was no basis for programme making or for estimating future requirements and

supplies, no warning was given to the armament firms of what would be expected of them. This cause must be attributed to the mentality of the nation as much as to the Governments before the War.

(2) The great programme undertaken by the Admiralty. During the period of breakdown with which we have been dealing, namely, August, 1914, to June, 1915, the following warships were in different stages of construction in private yards*:

- 9 Battleships.
- 3 Battle Cruisers.
- 3 Large Light Cruisers (Courageous Class).
- 9 Light Cruisers.
- 33 Monitors.
- 36 Sloops.
- 24 Patrol Boats.
- 10 Destroyer Leaders.
- 100 Torpedo Boat Destroyers.

The construction, armament and provision of ammunition for this quite considerable fleet levied a heavy toll on the limited resources of the armament firms and engineering industry. In addition there were under construction in the Naval dock-yards:—

- 4 Battleships.
- 8 Light Cruisers.

These threw some additional work on to private industry apart from orders for ammunition for the existing fleet, submarines, mines, etc.

(3) Before the War there was no idea of an expansion of the Army. The Navy was the first line of defence, and the size of the regular army was fixed by standards of Empire defence, India, etc. (See paragraph (4).) The Navy, as the first line of defence, had in practice first claim on all our resources, including the armament firms, who looked to the Admiralty for most of their orders.

(4) As mentioned in paragraph 10, ten months elapsed before the size of the Army to be aimed at was decided. This uncertainty as to our ultimate plans, added to the miscalculation made by ourselves in company with all the other belligerents as to the rate of expenditure on ammunition, led to constant fresh orders on a "hand-to-mouth" basis. This must have made the task of planning output very difficult for the private firms as well as for the War Office.

(5) The armaments firms had no experience whatever to guide them in estimating for an expansion of output on the vast scale with which they were confronted.

(6) The Government itself was ill-organised for the conduct of a vast war. A Cabinet of about twenty busy Ministers, most of them with large Departments to administer under war conditions, was meeting without an agenda paper and without even a record of its decisions and without a secretary. With its many preoccupations it was not a good machine for thinking out the problems involved in the improvisation of a vast army. There was nothing corresponding to the existing Principal Supply Officers Organisation of the Committee of Imperial Defence. That probably accounts for some of the national conditions which made the work of the private firms so difficult.

* Ships completed in August, 1914, are not included in these lists. These particulars have been summarised from a very long and elaborate return supplied by the Historical Section, which can be handed in, if desired.

* *History of the Ministry of Munitions*, Vol. I, Part I p. 134.

ACCOMPLISHMENTS OF THE REGULAR CONTRACTORS.

41. Some idea of the actual achievements of the regular contractors in the War, as distinct from their

delinquencies, can be obtained from the following sample figures:—

(1) The contribution to the construction of war-ships is shown in the following Table:—

TABLE VI.

CONSTRUCTION OF WARSHIPS, 1914-1918.

SUMMARY.*

	Built at Government yards.	Built by private companies.	Total.	
Battleships ...	6	11	17	
Battle Cruisers ...	—	7	7	Three dismantled before completion.
Large Light Cruisers ...	—	3	3	
Light Cruisers ...	14	45	59	
Monitors ...	—	38	38	
Sloops ...	—	86	86	
Convoy Sloops ...	—	34	34	
Mine-sweepers ...	—	139	139	Twenty-seven further vessels of this type cancelled.
Patrol Boats ...	—	64	64	
Destroyer Flotilla Leaders ...	—	39	39	} 384
Torpedo Boat Destroyers ...	—	345	345	
Submarines ...	29	180	209	
	49	991	1,040	

Note.—All engines built by private companies.

(2) Such expansion of the gun-making industry as was possible was almost entirely in the hands of the private industry. The factories ordered by the Ministry of Munitions did not manufacture guns "before 1917." In 1917 three National Projectile Factories turned over to gun manufacture or repair and were renamed National Ordnance Factories; thus:

Nottingham Ordnance Factory made 18 pdr. and 6-in. guns.

Hadfield Sheffield National Projectile Factory became an Ordnance Factory and made 60 pdr. guns.

Leeds National Projectile Factory developed capacity for 200 gun bodies a month.† The private armament firms supplied during the War 25,513 guns as compared with 4,326 guns supplied by Woolwich Arsenal and 1,406 guns obtained from the United States of America. Details are contained in the following Table supplied by the Historical Section:—

TABLE VII.

SUPPLY OF GUNS 1914-1918.

PRIVATE FIRMS.

	Home.					U.S.A.					Woolwich Arsenal.				
	1914.	1915.	1916.	1917.	1918.	1914.	1915.	1916.	1917.	1918.	1914.	1915.	1916.	1917.	1918.
Light (2-pdr.— 4-in. A.A.)	43	2,466	1,792	3,803	6,890	—	189	406	262	156	87	402	450	775	1,351
Medium (60-pdr.— 4-6-in. How.)	40	695	1,648	861	1,763	—	—	—	160	—	—	88	168	24	96
Heavy (6-in.— 15-in.) ...	8	66	1,074	1,849	2,516	—	—	—	186	57	69	204	313	138	189
	91	3,226	4,514	6,513	11,169	—	189	406	508	213	126	694	931	937	1,638
	25,513					1,406									
	26,919										4,326				
	GRAND TOTAL ...										31,245				

Note.—The above figures are taken as to Home and American production from the *Review of Munitions Output* prepared by the Statistical Branch of the Ministry of Munitions, and as to Woolwich Arsenal output from the *History of the Ministry of Munitions*.

(3) The industry supplied 230,840 machine guns, and 1,946,068 out of 3,954,226 rifles produced at

home. The industry's output of small arms ammunition (ordinary) was 5,428,794,000 out of a total of 7,760,525,000 rounds.‡

* Furnished by the Historical Section, Committee of Imperial Defence, which also provided particulars of every ship included in the list. These lengthy details can be handed to the Royal Commission if desired.

† *History of the Ministry of Munitions*, Vol. VIII, Part II, pages 194-6.

‡ Ministry of Munitions, *Review of Munitions Output*, 1914-15.

(4) Even in the supply of shells, where, as we have seen, private manufacture failed in 1914-15 to fulfil its contracts, the achievement of the regular private contractors was very remarkable, when their record in the War as a whole is con-

sidered. The following Table, extracted from the *Official History of the Ministry of Munitions*, Volume X, Part III, Appendix III, page 129, contains the necessary particulars:—

TABLE VIII.
OUTPUT OF EMPTY SHELL, 1914-1918.
(Figures in thousands.)

Totals.	1914.	1915.	1916.	1917.	1918.	Total.
Ordnance Factories	77.3	1,209.2	1,821.3	1,536.1	924.2	5,568.2
National Shell Factories	—	163.1	4,154.9	7,694.7	8,014.2	20,026.9
National Projectile Factories	—	37.3	2,557.8	8,100.2	9,421.5	20,116.8
Co-operative Groups	—	520.3	9,839.3	17,233.4	16,737.0	44,330.0
Direct Contractors	168.1	6,384.5	15,315.2	22,074.4	28,704.0	72,646.2
Total Home	245.4	8,314.5	33,688.5	56,638.8	63,820.9	162,708.1
Abroad... ..	—	8,022.4	41,848.5	27,533.0	18,330.0	95,733.9
Grand Total	245.4	16,336.9	75,537.0	84,171.8	82,150.9	258,442.0

The percentages of the different kinds of output are contained in the following Table, extracted from the same Volume, page 67:—

TABLE IX.
PERCENTAGES OF OUTPUT OF EMPTY SHELL FROM HOME SOURCES.

	Light.	Medium.	Heavy.	Very Heavy.	Total.
Ordnance Factories	4.5	3.0	.04	.3	3.4
National Shell Factories	12.5	16.0	8.0	2.1	12.3
National Projectile Factories	1.6	18.3	37.0	47.7	12.4
Co-operative Groups	30.1	29.7	16.9	6.2	27.3
Direct Contractors	51.3	33.0	38.0	43.7	44.6

From these Tables it will be seen that the trade (direct contractors) supplied 72,646,200 empty shell out of 162,708,100 empty shell produced at home, or 44.6 per cent. of the total, the next largest source of supply being the co-operative groups with 27.3 per cent. of the total. The great armament firms are described in the *History of the Ministry of Munitions* as "the aristocracy of shell manufacture". In addition, it must be remembered that the National Projectile Factories, built at the cost of the Ministry of Munitions, were managed on behalf of the Ministry by private firms. In reviewing the supply of shell at the end of Volume X, Part III, the *History of the Ministry of Munitions* (p. 115) passes the following comment:—

"The creation of the huge output of the new factories should not be allowed to obscure the contribution of the direct contractors. Aided largely by loans and grants from the State, these contractors raised their output more than forty-fold. In 1914 and 1915 they produced two-thirds and three-fourths respectively of the home output of empty shell, and in 1918 were still producing more than one-third of that output."

(5) In the aircraft industry the output of the private industry was as follows:—

(a) Aircraft (airframes).
Aeroplanes, Seaplanes and Flying-boats.

Total produced at home	55,093
Deduct the output of the Royal Aircraft Factory (500 machines) and of the National Aircraft Factories at Aintree, Waddon and Henton, established January-March, 1918 (603 machines)	1,202
Production of private industry	53,891†
machines.	

* *History of the Ministry of Munitions*, Vol. X, Part III, page 68.

† Ibid, pages 10-11.

‡ Extracted from the *History of the War in the Air*, Vol. III, Appendix VI.

(b) Aero Engines.

The totals were:—

Private firms at home	41,034
From abroad	16,897
	57,931*

Some further particulars of the part played by the private industry in the development of aircraft in the War are contained in the next section.

(6) The private arms industry gave considerable assistance in the work of the Ministry of Munitions. The National Projectile Factories, for example, were in the main erected, designed and managed by the armament firms.

42. The above particulars are only given as illustrations of what was accomplished by the armaments firms during the War 1914-18. They could be augmented to almost any extent. It must not be overlooked, however, that the industry derived incalculable assistance from the work of re-organisation undertaken by the Ministry of Munitions, and by the Government as a whole, especially after the establishment of the War Cabinet in December, 1916, had created better machinery for directing and focussing our national war effort.

AIRCRAFT AND AERO-ENGINES.

43. A Memorandum on the subject of air supply during the War, prepared by Mr. H. A. Jones, the Official Historian of *The War in the Air*, is attached in Annex III. From this it will be seen that in August, 1914, there were twelve aircraft manufacturing firms in England, three of which specialised in sea-planes. In addition, two leading ordnance firms held contracts for the making of aeroplanes of Royal Aircraft Factory designs. At that time all the engines in use were of foreign, mainly French, design.

44. During the early part of the War the tendency of the War Office was to concentrate on official designs rather than trade designs (e.g., the Royal

* Ibid, Appendix VII.

Aircraft Factory Napier engine, which proved a failure, rather than the Rolls Royce engine which was a success), while the Admiralty relied upon private enterprise. On this the Official Air Historian comments as follows:—

"A comparison of the results achieved by the Admiralty and War Office methods in this early period suggests that the War Office tendency towards concentration on official designs resulted in over-standardisation. This made for inflexibility at a time when technical progress and general air developments were so rapid that the greatest possible flexibility of organisation and outlook was essential.

To hand out drawings and specifications of official designs to manufacturing firms, and to limit inspection to what is required to ensure that the specifications are observed in detail, has one important effect, namely, that the manufacturing firms are largely divested of their initiative. Instead of working on their own design, with a personal interest in its betterment, they do what they are ordered to do and then await further inspiration from the official designing agency. Thus initiative tends more and more to be centred and confined, whereas with rapid technical changes in progress, initiative should be as free as possible.

On the whole, the Admiralty system, which picked out firms of promise, backed them powerfully, and provided the machinery whereby difficulties could be overcome and improvements incorporated with the minimum of delay, achieved a degree of flexibility which could not perhaps, compatible with efficiency, have been surpassed."

The above remarks bring out the value of the private firms.

45. Experience in the later part of the War, also described in Annex III, did not belie the above remarks. The National Aircraft Factories, established by the Ministry of Munitions, were not a conspicuous success—though the late period of the War in which they were brought into being makes it unfair to judge them too harshly. The best designs of aeroplanes and aero-engines during the War were produced by the trade.

46. The output of the trade and of the Government establishments is given in paragraph 41 (4). It will be seen that the trade supplied by far the greater part of our aeroplanes and engines.

47. As the result of experience both in the War and after the War the Air Ministry attach the utmost importance to the retention of the private aeroplane and engine industry.

CONCLUSION.

48. It has been shown above that the armament firms broke down badly in 1915 and fell grievously behind their contracts. It is also shown, however, that there was no national plan for an expansion of the Army or for its supply in war; that the armament firms had absolutely no warning of what was expected of them; that before the War they had only received a small proportion of the relatively small orders given by the Government for arms and ammunition for the Army; that after the outbreak of war the War Office had to give large orders to the armament firms because there was no other source to which they could turn; that both the War Office and the private firms lacked accumulated experience to guide estimates as to rates of delivery; that after the contracts had been accepted by the private arms industry new factors arose to increase their difficulties; that these factors were beyond their control; that in these early months of the War the Government allowed large numbers of skilled men to be enlisted by the fighting services, and failed both in finding labour to replace what was lost and in securing the suspension of such trade union rules as tended to restrict output; that there was serious delay, both at home and abroad, in the delivery of the machine tools on which the private firms had

counted; that the system of widespread sub-contracting by the armament firms—a system encouraged deliberately by the Government—failed; that, owing to developments in policy as to the eventual size of the Army, and miscalculations (shared by all belligerents) as to the scale of expenditure of ammunition, orders had to be given during the early months of the War on a "hand-to-mouth" basis; that this made long-range planning difficult both for the Government and the armament firms; that during these early months "the time needed for the creation of new capacity . . . differed little in fact from that which the large experience of the Ministry of Munitions showed to be the normal time required for the development of bulk output from new sources of supply"; that the education received by firms acting as sub-contractors to the armament firms was an important factor in enabling them to organise their own resources on a wider and more independent basis; that the armament firms were carrying out enormous orders for the Navy, which, under our system of Imperial Defence, were in practice given priority; that in 1914-15 the Government itself was not well organised for the conduct of a great war or for the mobilisation of our industrial effort; that, even in the worst period of supply (in the spring of 1915) the actual output of the armament firms was considerable, and greatly exceeded that of the Royal Ordnance Factories, which had received considerably larger orders than the trade in pre-War times; that, taking the War as a whole, the actual achievement of the trade in supplying the requirements of the Navy, Army and Air Force was a very great one, especially after the Government had done its part in providing an adequate organisation both of the war machinery of Government in general and of war supply in particular.

49. "He who has made no mistakes in war," said Turenne, "has seldom made war". In the Great War 1914-18 there can have been few responsible men who made no mistakes. This applies not only to the leaders of the fighting services, but equally to statesmen, Government Departments and everyone else who held responsibility in this very difficult business, and to our allies and enemies at least as much as to ourselves. If, then, the armament firms made mistakes, they were in good company. But whether, and how far, the responsibility for the failure of the munitions supplies in 1915 should be placed on the armament firms, or on previous Governments or on the British people for lack of provision, or on the Government in office at the outset of the War, or on any particular Department or Departments of that Government, or on our allies, whose failure compelled us to supplement our naval effort by improvising an army on a continental scale, or on the unprecedented conditions of those days, or on the "vicissitude of things"—all these matters I leave to the Royal Commission to determine if they are so minded. "The changes and vicissitude in wars are many", says Bacon,* "but chiefly in three things, in the seats or stages of the war; in the weapons, and in the manner of the conduct". To such "changes and vicissitudes"—so, at least it seems to me—many of our difficulties, including those relating to armaments, were due. But, whatever may be the correct judgment as to responsibility in the matters discussed in this Appendix, I desire to place on record my deliberate conviction that we should not have survived the War without the resources of the firms engaged before the War in the private manufacture of arms and munitions of war.

(Signed) M. P. A. HANKEY.

May, 1935.

* Bacon's Essay, *Of Vicissitude of Things*.

ANNEX I.

ALLOCATION OF WAR OFFICE ORDERS BETWEEN ORDNANCE FACTORIES AND TRADE FOR FIVE YEARS
1908-9 TO 1912-13.

	1908-09.					1909-10.				
	Total Expendi- ture.	Divided between		Percentage.		Total Expendi- ture.	Divided between		Percentage.	
		Ordnance Factories.	Trade.	O.F.	Trade.		Ordnance Factories.	Trade.	O.F.	Trade.
	£	£	£	Per cent.	Per cent.	£	£	£	Per cent.	Per cent.
<i>Selected Items—</i>										
Guns	274,717	260,276	14,441	95	5	226,452	180,494	45,958	80	20
Gun Ammunition, etc. ...	386,860	360,152	26,708	93	7	296,798	271,779	25,019	92	8
Small Arms	472,132	250,367	221,765	53	47	441,636	236,541	205,095	53	47
Small Arm Ammunition	379,202	203,007	176,195	54	46	342,837	202,030	140,807	59	41

	1910-11.					1911-12.				
	Total Expendi- ture.	Divided between		Percentage.		Total Expendi- ture.	Divided between		Percentage.	
		Ordnance Factories.	Trade.	O.F.	Trade.		Ordnance Factories.	Trade.	O.F.	Trade.
	£	£	£	Per cent.	Per cent.	£	£	£	Per cent.	Per cent.
<i>Selected Items—</i>										
Guns	242,032	156,447	85,585	65	35	151,488	121,514	29,974	80	20
Gun Ammunition, etc. ...	440,243	328,062	112,181	75	25	536,824	332,751	204,073	62	38
Small Arms	403,297	244,595	158,702	61	39	319,885	230,037	89,848	72	28
Small Arm Ammunition	284,236	180,040	104,196	63	37	503,010	187,290	315,754	37	63

	1912-13.				
	Total Expendi- ture.	Divided between		Percentage.	
		Ordnance Factories.	Trade.	O.F.	Trade.
	£	£	£	Per cent.	Per cent.
<i>Selected Items—</i>					
Guns	192,004	154,202	37,802	80	20
Gun Ammunition, etc. ...	521,237	321,940	199,297	62	38
Small Arms	290,010	209,426	80,584	72	28
Small Arm Ammunition	809,115	220,504	588,611	27	73

Records for the year ended 31st March, 1914, are not available in a sufficiently complete state to furnish the above information for that year owing to the intervention of the War.

ANNEX II.

PRE-WAR ORDERS.

The chief trade firms to whom orders were given were as follows:—

1. GUNS, &c.

Armstrong-Whitworth (1908, 1909, 1910, 1911, 1912).
 Boardman (1911).
 Vickers (1908, 1909, 1911, 1912).
 Coventry Ordnance Works (1909, 1912).

2. GUN AMMUNITION.

Coventry Ordnance Works (1908).
 Projectile Coy. (1908, 1909, 1910, 1911, 1912).
 Armstrong-Whitworth (1908, 1909, 1910, 1911, 1912).
 Hindfields (1911, 1912).
 Vickers (1909, 1910, 1911, 1912).
 Cammell-Laird (1909, 1911, 1912).
 Harper (1911, 1912).
 Birmingham Metal & Munitions Coy. (1909, 1911, 1912).
 Firth (1912).

3. SMALL ARMS.

Birmingham Small Arms Coy. (1908, 1909, 1910, 1911, 1912).
 London Small Arms Coy. (1908, 1909, 1910, 1911, 1912).
 Vickers (1912).

4. SMALL ARM AMMUNITION.

Eley Brothers (1908, 1909, 1910, 1911, 1912).
 Kings Norton Metal Coy. (1908, 1909, 1910, 1911, 1912).
 Greenwood & Batley (1908, 1909, 1910, 1911, 1912).
 Birmingham Metal & Munitions Coy. (1908, 1909, 1910, 1911, 1912).
 Kynochs (1911, 1912).

5. EXPLOSIVES FOR 2 AND 4 ABOVE.

British Explosives (1910, 1911, 1912).
 Chilworth (1910, 1911, 1912).
 Cotton (1908, 1909, 1910, 1911, 1912).
 Curtis & Harvey (1908, 1910, 1911, 1912).
 National Explosives (1911, 1912).
 New Explosives (1908, 1910, 1911, 1912).
 Nobel's (1908, 1909, 1910, 1911, 1912).

ANNEX III.

THE DESIGN AND SUPPLY OF AIRCRAFT.

1914-1918.

MEMORANDUM BY THE OFFICIAL AIR HISTORIAN.

So far as concerns the war-time design and supply of aircraft, a dividing line must be drawn at February/March, 1917. In the first period, from August, 1914, to February, 1917, design and production were under the separate departmental control of the Admiralty and of the War Office. In the second, from March, 1917, to the end of the War, aeronautical supplies for the naval and military air services and, later, for the Royal Air Force, were the responsibility of the Ministry of Munitions.

It will be necessary to consider each period separately.

PART I.

AUGUST, 1914, TO FEBRUARY, 1917.

In this period two courses were followed:—

(a) Aircraft and engines of official, that is to say, of Royal Aircraft Factory, design, were manufactured under contract, in accordance with detailed drawings and specifications supplied by the Royal Aircraft Factory; and

(b) Private manufacturers were encouraged, usually by contracts of flexible definition, to produce designs of their own. Furthermore, suitable private designs were put into production by contract with firms other than those initiating the design.

Broadly speaking, and subject to such modifications as will appear later in this paper, the first method was that of the War Office, and the second the one followed by the Admiralty.

The Royal Aircraft Factory.—To understand the outlook of the War Office it will be of help if we consider the general position before the War. In 1905 an experimental establishment, known as His Majesty's Balloon Factory, had been set up at Farnborough. This factory, later called the Army Aircraft Factory, grew with the times and duly expanded its interest to include aeroplanes and airships. When, therefore, the Royal Flying Corps was formed in May, 1912, the Army had under its direct control what might be termed a national factory. It was newly titled the Royal Aircraft Factory and its duties were somewhat loosely defined as:—

- (i) higher training of mechanics;
- (ii) repairs and construction;
- (iii) tests of British and foreign engines and aeroplanes;
- (iv) experimental work; and
- (v) manufacture of hydrogen and the upkeep of airships and kites.

The first annual report dealing with the progress of the Factory showed that a very wide interpretation was given to the above statement of duties. Under the heading *Experimental work*, for example, it was said in the report that what had been done could be classified as follows:—

- (a) Design, relating to (i) airships and equipment, (ii) aeroplanes, (iii) propellers.
- (b) Physical investigations, instrument design, stability, and gun measurements, aeroplane gun trials.
- (c) Researches on fabrics, dopes, fuel and oil.
- (d) Researches on metals.
- (e) Experiments on engines and design of engines.
- (f) Inspection of Royal Aircraft Factory's and private firms' construction.
- (g) Testing of all aircraft except those bought under aeroplane competition.
- (h) Flying, bomb dropping, photography, and trials with machine guns.
- (i) Keeping the register of, and inspecting, privately-owned aircraft.
- (j) Keeping the main aeronautical and engineering store.
- (k) The measurements of gliding angle, speed, etc., at the military aeroplane trials.

(35612)

In August, 1913, the Royal Aircraft Factory was relieved of some of its duties. In that month a Military Aeronautics Directorate was constituted at the War Office, responsible for the equipment of the Royal Flying Corps. A new Equipment Branch was formed with separate inspection and contracts sections and the former took over full responsibility for all work connected with the inspection and testing of engines, aeroplanes, and spare parts. The factory was subsequently enabled to concentrate its main energies upon problems of design and experiment.

A background for the activities of the factory may be sketched. The aircraft industry was a new one and the factory was, so far as this country is concerned, in at the beginning. We had, however, in accordance with our national characteristics, been slow starters. In Europe, France was most alive to the importance of heavier-than-air craft and French private manufacturers had evolved aero engines and aeroplanes of proved success before British makers came into the field. At the beginning, in fact, the British air service was mainly dependent upon French design and manufacture.

What the factory tried to do was to disengage the Royal Flying Corps from this dependence upon France. Taking the French Bleriot as the prototype of a tractor aeroplane, the factory began before the War the design and manufacture of the B.E. (or Bleriot Experimental) series of aeroplanes, while in the way of the Farman, or pusher type, an F.E. (or Farman Experimental) was developed. Other designs were an S.E. (Scouting Experimental) series, produced with the idea that a fast light aeroplane would be of value in obtaining military information quickly, but of which a war-time variant (the S.E. 5) became a notable single-seater fighter, and, finally, an R.E. (Reconnaissance Experimental) series.

Permission to design aircraft engines had been specially sought in 1912. In August of that year, in an attempt to determine the best existing aeroplane for military use, the War Office had arranged a competition on Salisbury Plain. A prize of £4,000 had been offered, open to the world, and another of £1,000 limited to aeroplanes manufactured wholly, except for the engines, in Britain. The same aeroplane, a Cody fitted with an Austro-Daimler engine, had won both prizes, but the aeroplane did not subsequently prove suitable for army purposes. Commenting on the trials, the superintendent of the Royal Aircraft Factory said: "It seems fairly clear that there is no immediate prospect of our obtaining a thoroughly sound engine made in England for some time to come. I have made a suggestion for starting such engine construction in the 'trade,' and I wish at the same time to urge the critical state to which we are reduced by getting all our engines abroad. I am clear that by allocating a few thousand pounds to the work, I can produce a satisfactory standard engine at this factory. Such an engine when evolved could be manufactured out just as are the B.E. type aeroplanes by the 'trade'..." The Master-General of Ordnance in the War Office, commenting on this proposal, said, "Our experience in working out a new machine-gun was costly and ended in failure." After much discussion, however, the factory had been given permission, in December, 1912, to go ahead subject to a spending limit of £5,000. Three types were begun: an air-cooled 90-horse-power engine to take the place of the French 75-horse-power Renault; a radial of 110 horse-power; and a water-cooled 200 or 250-horse-power engine.

In the spring of 1914, a competition for a prize of £5,000 was held at the Royal Aircraft Factory for the best aircraft engine between 90 and 200 horse-power, of British manufacture throughout. The trials were sponsored by the War Office and the Admiralty, and the prize was awarded to the 100-horse-power Green engine. Twenty of these were ordered, but the Green engine proved too heavy for its power and its use was abandoned.

The only other promising British engines, of proprietary design existing when War broke out, were two Sunbeams, one of 160 horse-power, and the other of 200.

The pre-War attitude of the War Office may be thus summarised. Its main faith was in the Royal Aircraft Factory. For its current aviation needs it had to buy whatever appeared suitable of private design, and it was keen to procure what was best from the military point of view, irrespective of the country of origin. At the same time the Department was anxious to encourage British manufacturers to produce suitable types of their own design. This was the attitude, but the aviation vote in the Army Estimates was so small that, in practice, of the amount available to foster aircraft developments, the Royal Aircraft Factory took an undue share and the degree of practical encouragement given to private manufacturers in Britain was meagre.

The word "undue" as applied to the money allotted to the factory requires, perhaps, some qualification. No impartial observer would deny that the country received good value for its expenditure on the factory. Aeroplanes and an engine (the 90 horse-power R.A.F. of good design) were produced. On the other hand, it is fair to point out that had the same amounts of money been made available to private manufacturers, it would be presuming too much to suppose that they would have been less successful.

The Admiralty.—The Admiralty, before the War, came to be interested mainly in seaplanes. It developed its own experimental station at Eastchurch, and, from the first, looked to private enterprise to supply its needs. Furthermore, engines of low horse-power were of little use for seaplane work, and thus the Admiralty had more interest than the Army in the development of high-power aircraft engines. The Admiralty, in fact, as a technical department of long experience, used to dealing with engineering firms, was in a particularly favourable position to treat with, and to give technical help and encouragement to, private manufacturers.

Position on outbreak of war.—The position in August, 1914, was that there were twelve aircraft manufacturing firms in England, three of which specialised in seaplanes. In addition, two leading ordnance firms held contracts for the making of aeroplanes of Royal Aircraft Factory design. The various firms, when war broke out, held outstanding orders for 115 aeroplanes for the Royal Flying Corps, and for 15 aeroplanes and 34 seaplanes for the Royal Naval Air Service. The output of the country when war came may be set down as approximately 100 aircraft per year. All the engines in use were of foreign, mainly French, design.

The War.—In August, 1914, a verbal agreement was made by which certain aircraft and engine manufacturers were allotted to each air service.

On the recommendation of the factory, the War Office standardised the officially-designed B.E.2c, the first inherently stable aeroplane. Drawings and specifications were ready, and reputable firms of little or no experience in this class of work could therefore undertake manufacture. Large contracts were placed for the B.E.2c, but production proved slow and output did not reach its maximum until the end of 1915. By that time the Fokker monoplane had appeared, with a machine-gun synchronised to fire through the airscrew. Apart from its inferiority of performance, the stable qualities of the B.E.2c made it unsuitable for quick manoeuvre, essential in air combat. By the end of 1915, in fact, it had become obsolete, yet in the middle of 1916 about 50 per cent. of the aeroplanes in use by the Royal Flying Corps in France were B.E.'s.*

Reference has been made to engine design undertaken by the Royal Aircraft Factory. Early in 1915, the 90 horse-power R.A.F. engine had been satisfactorily tested and it was put into production

with five private firms. After much experiment at the factory it was developed into a 140-160 horse-power type, called the R.A.F. 4a, of which appreciable numbers were made in 1917.

Meanwhile, when war came, the factory had handed the drawings of its projected 200-250 horse-power engine to Messrs. Napier and to Messrs. Rolls-Royce for development. The former proceeded with the official design, but the latter firm declined, after examination, to go ahead with it and, instead, independently designed their own 250 horse-power engine (afterwards developed as the well-known Eagle).

Large orders were given for the 200 horse-power Napier engine, called the Napier R.A.F.3, before it had been proved. The engine was a failure and a great amount of time, money, and energy were wasted.

When the German Fokker fighters began to take increasing toll of B.E.2c's (as of other aircraft) in France, there was an outcry in Britain directed against the administration of the Royal Flying Corps. One of the main charges was that the War Office put "too blind a faith" in the Royal Aircraft Factory and gave its designs undue preference. In the summer of 1916, a Parliamentary Committee, under Mr. Justice Bailhache, was appointed to investigate the charges.

General Henderson, the director-general of military aeronautics, giving evidence before the Committee in July on the subject of the Napier R.A.F. 3a engine, said that in war-time it was sometimes necessary to gamble on an engine and trust to luck. The Committee in their report (Cmd. 8194, para. 44) stated: "This engine was being designed simultaneously with the 250 horse-power Rolls-Royce, upon which the directorate did not gamble. We think the reason why the R.A.F. Napier engine was selected for the gamble was because it was—at any rate partly—of R.A.F. design, and that this is an instance in which great reliance has been placed on the R.A.F. The engine has been adversely criticized, but whether the faith reposed in the R.A.F. in this case was 'blind' or not remains to be seen."

It would be unwise to dogmatise. The reader must use his own judgment of human nature when he considers whether official designs, with those who sponsored them in daily touch with the contracting departments at the War Office, were likely or not to receive more favourable consideration than outside designs. What is certain is that the failure of the War Office to develop Rolls-Royce engine production at this time† had a seriously adverse influence upon aircraft output during the remainder of the War. The influence was most felt in 1918 when an acute shortage of high-power engines prevented the development of a strategic bombing offensive against German industrial centres.‡

War Office neglect of Rolls-Royce engines would have been even more serious in its effects if the Admiralty had not given the firm appreciable orders. It should, however, be remembered that the Naval Air Service did not expand at the same rate as the Royal Flying Corps, and that Admiralty encouragement, vital as it was, could not ensure an extension of the firm's works sufficient to produce any surplus of output.

The British military air squadrons were continuously handicapped, vis-à-vis the German, through inferior engine power. In this connection, the Germans began the War with one important ad-

* Messrs. Rolls-Royce were requested by the War Office, in July, 1915, to undertake the manufacture of new-type automatic rifles for use in aeroplanes. The works at Derby were adapted for production at the rate of 100 rifles per week, but when all was ready the idea was abandoned.

† Sir Douglas Haig had been informed by the War Office in July, 1917, that 50 long-distance bombing squadrons would have arrived in France by August, 1918. The Commander-in-Chief made all arrangements to accommodate them, but at the Armistice there were no more than 9 such squadrons in France.

* Figures are available of the money value of all contracts placed by the Military Aeronautics Directorate between 1st August, 1914, and 31st March, 1916. They show that orders valued £8,800,000 were placed for aeroplanes, engines, and spares of Royal Aircraft Factory design: while £4½ million was spent on material of private design.

vantage. The pre-War development of Zeppelin airships had led to the development also of high-powered engines. What the Germans had to do, therefore, was, in the early days, to design down, a much simpler technical achievement than the production of high-powered from low-powered models. When they wanted the higher power they had it ready to their hands. It is easy to look back now and to see that one of the few ways in which the British could have discomfited the advantage which the existence of high-power airship engines brought to the Germans, was to help the Rolls-Royce firm to expand to the utmost.

They not only failed to do this, but they more than once refused to accept opportunities offered to them by the firm. Some examples will be given. In June, 1916, a representative of the firm appeared before the Air Board and complained that sub-contractors, who made Rolls-Royce parts, often received direct orders from the Admiralty or War Office to which they gave priority, with the result that the Rolls-Royce parts were delayed with consequent incalculable delays in the output of the finished engine. The only way to remedy this state of affairs, he said, was to give Rolls-Royce, and similar firms, effective control over the sub-contractors, and he went on to outline a "central factory" idea by which the bigger manufacturers would have smaller ones definitely allotted to them. The proposal was not adopted until two years later. Again, in the summer of 1916, Messrs. Rolls-Royce wanted to take over a factory, nearing completion at Derby, for the manufacture of aircraft engines. Because, however, the output from the factory could not begin in time to be taken into account in the spring 1917 air programme, then under discussion, the firm was refused permission to equip the factory. In July, 1917, the firm sent a telegram to the Air Board saying that they had opportunity to acquire a factory capable of producing 2,000 Eagle type engines between June, 1918, and February, 1919, and they asked whether the proposal interested the Air Board. The answer was in the negative. Finally, as the parts of Rolls-Royce engines were not interchangeable, spare gear could not be supplied and disabled engines had to be sent to the makers for repair. The firm foresaw that this might cause congestion which would delay new production, and in the autumn of 1916 they proposed to the Air Board that they should build a special repair shop. Permission to do this was withheld until July, 1917, when the accumulation of repair work was such that the curtailment of new production was both obvious and grave.

It has already been stated that the Admiralty relied upon private enterprise. The prestige of the Admiralty was such that firms engaged upon their contracts enjoyed what amounted to an effective priority for the acquisition of material. Furthermore, the control exercised by the Admiralty was not officious, but rather co-operative. Qualified engineers, styled production officers, acted as local representatives of the Admiralty Director of Air Services. One such officer was usually allocated to a group of two or three firms with subordinate officers resident at each firm. No detailed inspection was made by the officers. They gave general supervision, possessed wide discretionary powers to deal with day-to-day difficulties arising out of production, and formed a friendly and ready channel of liaison between the manufacturers and the technical departments of the Admiralty by means of which decisions upon major difficulties, or suggested improvements, could be obtained without delay. As a result of the system, the Admiralty fostered some of the most successful aircraft of the War, notably, some of those produced by the Sopwith firm, by Messrs. Short, Handley Page, and Avro.

A comparison of the results achieved by the Admiralty and War Office methods in this early period suggest that the War Office tendency towards concentration on official designs resulted in over-standardisation. This made for inflexibility at a

time when technical progress and general air developments were so rapid that the greatest possible flexibility of organisation and outlook was essential.

To hand out drawings and specifications of official designs to manufacturing firms, and to limit inspection to what is required to ensure that the specifications are observed in detail, has one important effect, namely, that the manufacturing firms are largely divested of their initiative. Instead of working on their own design, with a personal interest in its betterment, they do what they are ordered to do and then await further inspiration from the official designing agency. Thus initiative tends more and more to be centred and confined, whereas with rapid technical changes in progress, initiative should be as free as possible.

On the whole, the Admiralty system, which picked out firms of promise, backed them powerfully, and provided the machinery whereby difficulties could be overcome and improvements incorporated with the minimum of delay, achieved a degree of flexibility which could not perhaps, compatible with efficiency, have been surpassed.

PART II.

THE MINISTRY OF MUNITIONS.

The supply problem led to a crisis in the autumn of 1916. In September a new German air fighting unit, the *Jagdstaffel*, had made its appearance on the Western front, under the leadership of the German ace, Oswald Boelcke. This unit was equipped with new-type fighters fitted with twin machine-guns firing through the propeller. British air superiority, at its peak when the *Jagdstaffel* appeared, began unmistakably to wane. It became clear to R.F.C. H.Q. that air fighting would more and more dominate the expansion of the Royal Flying Corps and, in November, 1916, the Commander-in-Chief, on the initiative of Major-General Trenchard, wrote to the War Office saying that he would require twenty fighting squadrons additional to what had already been asked for. There were no means, with the existing organisation, of meeting this demand. There must be a stocktaking of all the national air resources.

The Government decided to extend the powers of the Air Board, and to transfer responsibility for the supply of aircraft to the Ministry of Munitions. This decision was recorded in December, 1916, and the constitution of the second, or *Cowdray*, Air Board, was defined by an Order in Council, dated the 8th of February, 1917.

Upon the Ministry of Munitions taking over, the newly-appointed Controller of Aeronautical Supplies, after studying the service experiences, adopted, with minor modifications, the War Office inspection method, and the Admiralty policy with regard to design, by which the responsibility for initiating design fell upon the private manufacturers.

The main change of policy under the Ministry lay in a growing tendency towards concentration of supply in large units. In part this was due to a shortage of instructional and supervising staff to cope with the influx of unskilled labour into industry; in part, also, to complications connected with the allocation of material to large numbers of small firms.

Aircraft engine supply continued to be the dominant limiting factor in all aspects of aircraft expansion. To increase production, the Ministry developed the capacity of existing manufacturers and gradually reduced the number of types of engine under manufacture. That is to say, there was a double concentration—of manufacturing effort and of types of engine.

In theory, and considered purely from the standpoint of expanded production, the action taken by the Ministry was exactly what was necessary. Unhappily, however, the practical results fell short, often lamentably short, of expectations. For this the Ministry can hardly be blamed. The Air Board was responsible for selecting the designs to be put into production. At the beginning of 1917 the Board selected three types of engine between 200- and 300-horse-power, for quantity production. Two of those chosen were put into production before they had

been adequately tested in the air. Furthermore, it was found that although the selected types had been satisfactorily made to specification, in small numbers, many, and sometimes important, alterations had to be introduced into the design before bulk production could be attained. There was, in fact, so much delay in the output of these engines, upon which important parts of the scheduled expansion of the air services depended, that not only was expansion held up, but when the engines did begin to appear in quantities in 1918, they had been outstripped by the progress made in aircraft performance. In other words, they had become obsolete.

It should be made clear that these designs were private, not official. But they were taken out of the designers' hands, at an early stage, and all subsequent developments were official. Furthermore, concentration on the particular designs, eliminated competitive developments in the same class. The danger was, as it may always be in a technical service, that in aiming at quantity, quality might be sacrificed. As it happened, neither was achieved.

Factory.	Work.	When Production began.	Output Programme per Week.	Total Output to March, 1919.	Cost.
Aintree ...	Made Bristol Fighters ...	March, 1918	40	126	£627,696
Waddington ...	D.H.9's. Erected Handley Pages and interrupter gear.	March, 1918.	40	241 aeroplane. 3,000 gears.	£1,102,611
Hendon Chapel ...	D.H.9's and D.H.10's ...	January, 1918	40	326	£1,196,512

The amounts shown as expended on the factories do not include outlay on capital account.

Production began at dates later than had been anticipated, and once the production stage had been reached, the rate of progress fell far short of what had been allowed for. Various reasons were given, among them the comparative inexperience in aircraft work of factory managers, labour disputes, shortage of materials, inadequate supplies of engines and radiators, and frequent modifications in design.

These difficulties, except the first, were common to all aircraft manufacturers at the time. It might be misleading to make undue play with statistics, but at Aintree, for instance, it may be said that each Bristol Fighter produced cost nearly £5,000. This figure compares with a contemporary contract price, with private manufacturers, of £1,950.

It may be that had the War continued into late 1919 or 1920, the national aircraft factories would have justified themselves in the matter of output, costs of production, and general efficiency. They were, however, slow and costly to get started and there is small doubt that the money and energy expended upon them would have brought quicker and larger returns had it been employed instead on the further expansion of existing private concerns.

The output figures for aircraft and engines in the War, and whether their place of origin was at home or abroad, are fully set out in Appendix VII, to Volume III, of "The War in the Air" and are not, therefore, repeated here. The war output of the Royal Aircraft Factory is given in Table B, Appendix VI, in the same volume.

There were other limiting factors in the war production of aircraft, but the dominating one was engine output and that is why attention in this brief summary has been mainly directed to engine supply problems.

In conclusion, it may be said the War demonstrated that:—

(i) Technical superiority of aircraft will go a long way, and may go all the way, to offset numerical superiority. In consequence, technical progress was as important, to say the least, as bulk production.

(ii) There could be no sort of finality about design; aircraft and their equipment were always at the experimental stage.

(iii) A policy which threatened over-standardisation, or fixity of design, had great elements of danger.

This much may be said by way of comment. The history of the air war on all fronts teaches the lesson that quality, as represented by performance and weapon effect, is the most important single factor in air warfare. To narrow the choice, which the aircraft production policy of 1917 did, was to take risks only justifiable if the types chosen had been of proved and unmistakable efficiency.

The Rolls-Royce engines were of this kind* and when it became clear that the other engine programmes were going to fail attempts, which might almost be described as desperate, were made to standardise Rolls-Royce engines. But the effort had come too late to be of real value in the War.

National Factories.—So urgent had the problem of output expansion for aircraft become that the Ministry of Munitions decided, in September, 1917, to proceed with a policy for building national aircraft factories. Three aeroplane factories were constructed at Aintree, Waddington and Hendon Chapel. Their story may be summarised as follows:—

(iv) Conversely, the more flexible the position that was maintained, particularly with regard to design, the greater the chances were of technical progress.

(v) The existence of official designs tended to lead to over-standardisation.

(vi) The policy of promoting competition among selected private firms made for variety and flexibility.

(vii) The majority of labour employed upon the manufacture of aircraft engines, and of certain essential aircraft components, required to possess a very high degree of specialised skill.

(Signed) H. A. JONES.

Air Historical Branch,
February, 1935.

ANNEX IV.

EXTRACT FROM HISTORY OF THE MINISTRY OF MUNITIONS, VOL. I, PART I, PP. 120-121.

"For some weeks past signs had been multiplying that contractors would be unable to keep to their promised rate of delivery. A good illustration is found in a letter written by Messrs. Cammell Laird on 5th October, 1914, which gave reasons for the necessity of revising in a downward sense the estimates of delivery placed before the War Office on 19th August when the first orders for shells were being settled. During the intervening six weeks, as the firm explained, the conditions had materially altered so that the prospects were no longer as favourable as had been hoped for. The three dominant factors were (1) labour supply, (2) machinery, (3) the assistance to be obtained from sub-contractors.

(1) *Labour Shortage*.—This had not been reckoned on in August, but already its incidence was serious.

'From our own Shell Department many of the younger men, thoroughly trained and skilled in shell manufacture, enlisted; and other works being similarly placed efficient substitutes cannot be found within the district. We are in constant communication with the various Labour Bureaux,

* It was a saying of the War that the Rolls-Royce engines were the only ones which never had teething troubles.

and have sent our own officials round Manchester, Leeds and Derby, but there seems no doubt that the demand for skilled workmen, such as are required for the manufacture of shell, exceeds the supply. Even when good mechanics are obtained from other trades they require special instruction before they are capable of performing useful work. This shortage has another retarding effect as unfortunately men are disinclined to work during Saturday afternoon and Sunday, and so far as we can judge, any attempt on our part to force them would result in their leaving our employment.'

(2) *Supply of new machinery.*—Messrs. Cammell further drew attention to the difficulty experienced in procuring the necessary supplies of additional machinery:—

'At the time our letter was written it was thought that no special difficulty would be experienced in obtaining machines. We may regard ourselves as fortunate in having procured 36 high-class machines during the past two months; but the manufacturers' stocks of suitable machines appear to be nearly exhausted, and some time must elapse before we can make extensive additions to our plant.'

(3) *Failure of sub-contractors.*—Finally the hopes and expectations of assistance from the sub-letting of work had to be revised. With regard to those

assisting with special machine work, Messrs. Cammell had now realised that—

'in spite of precautionary advice on our part they were too optimistic of their powers of production with regard to initial as well as continuous delivery. The conversion of machines, designing and making special tools and instructing men has taken longer than they anticipated; and furthermore they would not be convinced that the manufacture of shell had difficulties different from those they had been accustomed to meet. We believe that with many firms their powers of production will continuously improve, but in estimating their first deliveries we regret that sufficient allowance was not made for their want of experience.'

With regard to contractors supplying fittings and component parts required to complete various types of shell it was realised that the demand on their resources had increased so suddenly that they too were failing to fulfil delivery promises; but it was hoped that there would be an improvement as soon as supply became better regulated to meet the demand—a wish whose fulfilment was unfortunately still a very long way away.

Shortage of labour and machinery and the failure of sub-contractors were in fact the principal causes of the breakdown of supply in the spring of 1915, and it is therefore worth while to consider each of these points in some detail.'

APPENDIX VI

UNITED STATES OF AMERICA: EXPORTS OF CERTAIN MUNITIONS TO UNITED KINGDOM AND THE ALLIES EXCLUSIVE OF RUSSIA IN ASIA AND JAPAN.

(Calculated from United States of America Trade Returns.)

	1913.	1914.	1915.	1916.	1917.	1918.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Cartridges	96,247	526,875	12,685,632	30,608,398	56,750,365	10,905,260
Dynamite	—	—	—	362,361	—	497,550
Gunpowder	9,410	12,350	4,168,096	138,532,737	309,813,589	254,629,491
Shells and Projectiles	—	—	—	—	—	20,143,576*
All other explosives	26,600	649	14,562,743	226,530,617	310,190,804	34,155,564
Firerams	478,155	378,625	3,900,086	11,488,239	88,144,116	45,363,665
Aeroplanes	33,600	99,149	341,512	1,964,091	170,954	27,775
Parts of	3,910	13,441	446,223	4,488,084	1,849,555	5,680,200
Barbed wire	68,608	69,967	3,110,283	14,815,481	16,173,806	13,009,673
	706,530	1,091,057	39,204,575	428,800,006	782,063,188	384,313,154

* Included under "All other explosives" prior to 1915.

APPENDIX VII

THE ORGANISATION OF SCIENTIFIC RESEARCH AND THE ROLE OF GOVERNMENT IN THIS FIELD, BY FRANCIS HEMMING, C.B.E., SECRETARY, ECONOMIC ADVISORY COUNCIL.

I.—INTRODUCTORY.

The present organisation of research in Great Britain has been evolved gradually as the natural response to the realisation, first here, then there, of a need for more knowledge in one or other of the main branches of human activity. It is only natural therefore to find that the forms which it has assumed are of almost infinite variety. Looking back on the course of its development it is easy to point to institutions which under modern conditions would never have been created or at least would have followed some quite different model. The apparent anomalies presented by such institutions to-day are due to the fact that though the organisation adopted may have been, and probably was, appropriate to the needs and ideas of the time in which these institutions were established, the course of subsequent events has so changed the situation that far reaching modifications in organisation have been found to be necessary in order to adapt these institutions to the needs of the world to-day. Anomalies of this kind, are often the subject of criticism by those over whose minds symmetry and logical

order exercise a special attraction. That these attributes are of importance in judging any given organisation is not to be doubted. But there are attributes which are often of far greater importance. Thus, before considering the value of any organisation, it is essential first to determine whether in its present form it satisfactorily discharges the functions entrusted to it and whether changes would be likely to enhance its general efficiency.

II.—RESEARCH ORGANISATIONS MAINTAINED BY GOVERNMENT.

2. Intimately bound up with the general question of the organisation of research is the question of the role which government as such should play in this field. Here again we find in Great Britain the widest diversity of practice. At the one end of the scale we find the government itself engaged in research in state laboratories specially established to investigate some particular groups of problems of direct utilitarian importance. At the other end we find the state making grants to individual men of science to enable them to continue their particular

lines of research on whatever lines they themselves consider the most appropriate. Between these two extremes, almost every intermediate method for the devolution of control has been adopted by government at some time or another in the various branches of scientific endeavour.

3. It would however be a profound mistake to conclude that the attitude of government to research has been mainly determined by the force of circumstances or that the methods adopted by government for intervention in this field are largely the product of historical accident. For beneath the wide variety of form which that intervention has taken, it is not difficult to observe that there is a series of general principles which have informed the policy of government in this field. The nature of these principles will be seen from the short account given below of the steps taken by government to promote research in the various departments of our national life. For this purpose research directed to utilitarian ends may conveniently be classified into three main branches, industrial research, agricultural research and medical research.

(a) Industrial Research.

4. Up to the close of the nineteenth century the State took little active part in promoting the development of science beyond the support which it constantly accorded to the Royal Society which in many respects acted as its adviser on questions raising scientific issues. The opening of the present century witnessed an important development when on the petition of the British Association the government invited the Royal Society to organise in this country an institution analogous to the *Reichsanstalt* in Berlin and to nominate a governing body on which commercial interests should be represented. The Royal Society consented to undertake this task and the National Physical Laboratory was established in 1901 as a public institution for standardising and verifying instruments, for testing materials and for the determination of physical constants. The support accorded to the new laboratory, not only by men of science but by the leaders of industry also soon showed that this institution had an important role to play in the application of science to industry. Its subsequent history has been one of continuous development within the general scope of the purposes for which it was established to meet the increasing needs of industry in this field.

The work of the laboratory to-day may be classified under three main divisions. First, there is the work which makes the laboratory the final authority on questions of exact measurement, whether of standards of measurement or of physical constants. Secondly, there is the work which it carries out for assisting industry in other ways. This may be subdivided into (a) long range research (i.e. research designed to bring to light problems, the solution of which is called for by the progressive application of science to industry), (b) investigations suggested by the various research boards of the Department of Scientific and Industrial Research, some of which are undertaken with the co-operation of industry, and (c) tests and special investigations carried out on a repayment basis, at the request of industry. The third main division of the laboratory's work, which accounts for about one fifth of its total expenditure, is the research which it undertakes for the Defence Services.

5. The second great step in the promotion of industrial research was taken in 1915 when the organisation which has developed into the present Department of Scientific and Industrial Research was founded by government. The nineteen years which have since elapsed have witnessed an astonishing growth of government activity in this field. Financial responsibility for the National Physical Laboratory was transferred by the Royal Society to the Department in 1918, and since that date the Department has established a number of other research stations. Those stations deal with such questions as fuel research, building research, the problems of food preservation, the utilisation of timber, and chemical research. The Department is now responsible also for the Geological Survey of Great

Britain and the Geological Museum. In addition the Department is engaged in a number of other specific investigations which are controlled by boards or committees and which are financed in whole or in part from the funds of the Department.

6. The phenomenal developments in the application of science to industry which the last quarter of a decade has witnessed have called for profound changes in the attitude of government towards scientific and industrial research. Within a single generation these developments have led to the establishment of a whole series of new industries; and in the sphere of national defence and generally in the industrial field government now accepts the duty of promoting the progressive and orderly development of the scientific and technical equipment of the nation. Amid all the variety of its activities, the Department has constantly kept this principle in mind and has lost no opportunity of giving it practical expression. Secondly, the Department has kept steadily before it the needs of industry in the development of research and the importance of assisting the support of industry in every branch of its work and at every stage of its development. Finally, the Department has always taken steps to ensure that business men of wide experience, and leading men of science, should be associated with the general planning of all research undertaken by the Department with a definite utilitarian object. The determination to secure this co-operation is reflected not only in the composition of the various boards and committees appointed by this Department to supervise particular types of research, but also in that of the Advisory Council for Scientific and Industrial Research, the body which is charged with the exclusive responsibility of tendering advice on scientific policy to the Lord President of the Council, the Minister responsible to Parliament for the work of the Department.

7. Less than two years after the Department was established, steps were taken by it to foster the continuous prosecution of research in the ordinary industrial field. To this end, Parliament agreed in 1917 to provide a fund of £1,000,000 from which the Department was enabled to make grants to research associations formed by particular industries or groups of industries. These associations were brought into existence on the initiative, and in the majority of cases with the financial assistance of the Department, but the policy of the Department has always been to limit these grants to a period sufficient to enable the various associations to establish themselves in the industry which they are designed to serve. The associations maintain their own research stations, appoint their own scientific staff, draw up their own programmes of research and decide their own policy as to the way in which research should be carried out, e.g. whether in their own laboratories or in some outside scientific institution. The Department maintains contact with the work of each association, and appoints representatives on its Council. A large number of research associations have been formed on these lines, and together their membership comprises about 5,000 firms, spread over a very wide range of industries. These firms have the right to put technical questions to their associations which are answered as fully as possible within the scope of the organisation. Thus each firm derives continuous benefit from its membership of this association, through the assistance which it receives in the application of scientific methods to the control of industrial operations and through the answers which it receives from the association on any special difficulties which it may have encountered in the conduct of its particular business.

(b) Medical Research.

8. Very little financial provision for medical research was made by government until 1911 when, on the passage of the National Health Insurance Act, one penny per annum in respect of each insured person, was earmarked for this purpose by the Insurance Commissioners established under that Act. The various bodies of Commissioners agreed that it would not be in the public interest for each of them

to create separate research organisations, and as a result it was arranged there should be established a single body charged with the duty of assisting the development of medical research in all parts of the country. A few years later, the committee so appointed was converted into the present Medical Research Council. The Council was incorporated by Royal Charter and responsibility to Parliament for its work was transferred to the Lord President of the Council, who already a few years earlier had become responsible for the Department of Scientific and Industrial Research.

9. The organisation given to the Medical Research Council was similar in essentials to that given a few years earlier to the Department of Scientific and Industrial Research, though there were naturally certain differences in form. The Council is itself the body responsible for tendering advice to the government and corresponds, therefore, with the Advisory Council on Scientific and Industrial Research (see paragraph 6 above). The other features of its organisation of which special note should be taken are the fact that, like the Department of Scientific and Industrial Research, it is attached to the Lord President of the Council and not to one of the Departments of State directly concerned with public health; and the fact that, like the Department of Scientific and Industrial Research, its secretary is a leading scientific authority.

10. Prior to the establishment of the Council, medical research had formed a natural part of the work both of the universities and of the great medical schools. In addition there were a few special research institutions established by private endowment. It was apparent at the outset that the first task of the Council was so to frame its general policy as to command the confidence of the medical profession and to take full advantage of the facilities for research that were already in existence. The subsequent development of the Council is evidence of the success which it has achieved in this field.

11. Ever since its foundation, the Council has set itself the task of encouraging and aiding research work at the universities, the medical schools, hospitals, and other institutions, which is likely now or at a later date to be useful for the better maintenance or restoration of human health and efficiency in varying conditions of environment. This work involves research in almost all the basic sciences and includes the application of these sciences to the clinical arts of medicine and surgery. The Council's work in this direction consists mainly in authorising grants to research workers to enable them to prosecute their investigations in their chosen field. In addition, the Council have established one research institute, the National Institute for Medical Research, as a central institution for fundamental experimental work in such branches of medical science as physiology, bio-chemistry, pharmacology, bacteriology, protistology, and pathology. Most of the work does not differ in kind from that done at academic centres, but the arrangement facilitates co-ordination of effort by a picked staff of specialists giving their whole time to research duties. A good example of this team work is the investigation of diseases of man and animals which are due to virus infections. A special function of this National Institute, in which a new department for the purpose has been made, is work on the determination of standards and methods of assay for biological substances of medical importance.

(c) Agricultural Research.

12. It was not until 1909 that the government in this country took steps to promote the development of agricultural research. It was in that year that Parliament authorised the establishment of a Development Commission with a fund of £2,500,000, "for aiding and developing agriculture and rural industries by promoting scientific research, instruction and experiments in the science, methods and practice of agriculture." Before this the experimental work at Rothamsted initiated by Lawes in

1843 was almost the only contribution made by this country to the development of agricultural science throughout the period up to the establishment of the Development Commission. This work was carried on entirely by private endowment and personal effort.

13. One of the first tasks of the Development Commission was to carry through as rapidly as possible a comprehensive review of the whole system by which research and education in agriculture were then organised in Great Britain. The scheme which the Commission then proceeded to draw up comprised the creation of a group of research institutes, each working on some specific branch of agricultural science; the formation of a consultative service to assist in bringing agricultural colleges, research institutes and farmers into closer touch with one another, the institution of a system of research grants to assist individual scientific workers who were not in the employment of any research institute and the establishment of a scholarship scheme to assist in the training of new workers in agricultural science. The key note of the whole scheme was the development of research in centres where it could most conveniently be carried on, and in conditions most likely to command the confidence both of the men of science by whom the work was to be done and of the farming community for whose benefit it was to be undertaken.

14. It was an essential part of the Commission's scheme that while adequate funds should be provided by the state, the work itself should not be carried on in institutions established and administered directly by government. Adequate provision was made to secure proper control by the departments of agriculture of the funds placed at the disposal of the institutions by government, but steps were taken to ensure that the actual administration of these bodies should be vested either in bodies of trustees or in appropriate departments of the universities. Owing to the facilities at the universities for the study of allied branches of science, the existence at the universities of important scientific libraries, and for similar reasons, the Commission looked with special favour on schemes which linked the new research institutes with the universities. It cannot be doubted that this policy has been amply justified by results. The institutes have succeeded in attracting to their service men of science of high standing, who have been free to carry on their scientific work on lines which they themselves approved and without the sense of restraint which might have been felt if they had been subject to day-to-day supervision by an ordinary department of state. But it was not only in the freedom which it allowed to the scientific staff in the conduct of their work that the scheme devised by the Commissions proved to be successful. For side by side with the development of the scientific work, steps were taken from the outset to ensure that scientific results obtained should be presented in a form in which their practical value could readily be appreciated by the farming community, and measures of all kinds were devised to encourage farmers to take full advantage of the improved methods made possible by the work of the research institutes.

15. Within the last few years the Government has taken a further step in the encouragement of agricultural research by the establishment of the Agricultural Research Council. The form of organisation given to this body was largely modelled on that of the Medical Research Council, and like that Council and the Department of Scientific and Industrial Research, the Agricultural Research Council is directly responsible to the Lord President of the Council. The Council is composed of men of science (but not only agricultural science) and of persons especially experienced in the practice of agriculture. The Secretary of the Council also has always been a man of science. The Council is thus well fitted to command the confidence both of the scientific world and of the farming community. The Council is not responsible for the management of research institutes, but it is in very close relations with these bodies in regard to their scientific work. The

Council also advises the departments of agriculture in regard to their expenditure on research. The funds at the disposal of the Council are not large and are almost entirely used for grants to enable particular pieces of research work to be carried out.

III.—PRINCIPLES ADOPTED BY GOVERNMENT IN ITS SUPPORT OF RESEARCH.

(a) Academic Research.

16. In considering the principles adopted by Government in support of research, it is important to distinguish the two angles from which research may be approached. In the first place there is research which is undertaken on account solely of the intellectual interest of the subject, and in which the research worker is free to follow whatever path seems to him most likely to lead to the discovery of new knowledge. Judged from this standpoint it is immaterial whether the research undertaken is pure or applied, whether it has any apparent relation to the needs of everyday life or whether it is concerned only with some question of purely speculative interest.

17. The conduct of disinterested research of this kind is pre-eminently a function of universities and museums, and of learned associations of scientific men. Government in this country has wisely recognised that it is no part of the duty of the state to intervene directly in this field. This does not mean that the state should disinterest itself in the academic study of the primary sciences, for on their development ultimately rest all those forms of research in which government intervention has proved of so much value. In this country government has shown its appreciation of the importance of the kind of research here under consideration, by the large grants which it has made to the universities, and the increased support which it has made to the national museums and similar institutions.

(b) Utilitarian Research.

18. In contrast with the foregoing type of research stands all that body of research and investigation with which, under modern conditions, government is so intimately concerned. This work is directed towards the solution of some problem of importance, either to the health of the nation, to its defence in time of war, or to its prosperity in time of peace. The investigations that may be called for may fall under the heading of either pure or applied research or both. The question now to be considered is: Can the policy of the government towards the vast range of problems embraced in this field be framed in the light of some uniform principle or principles? Or is the diversity of subject so great that government should apply one set of principles in determining its attitude to one group of subjects, e.g. those embraced under the term medical research, and another set of principles when considering its attitude to some other group of subjects, e.g., those falling in the category of industrial research?

19. The short account of the organisation of research given in Section II shows clearly enough the answer given to these questions by government in this country. Despite the natural divergence between the organisation adopted for research in different fields, there is nevertheless discernible a uniform attitude on the part of government towards the two main questions which arise in regard to government intervention in the field of research. These questions concern first the form in which assistance can best be given by government in any particular field of research; secondly, where such assistance is given by the establishment of a special institution for this purpose, the lines on which that institution should be organised, and the best methods of gaining the confidence and co-operation both of the scientific world and of the profession or industry which the research in question is designed to assist.

(i) THE QUESTION WHETHER RESEARCH SHOULD BE CARRIED ON BY GOVERNMENT DIRECTLY OR INDIRECTLY.

20. The organisation adopted by government for the promotion of research whether industrial, agricultural or medical, has this in common, that, except in one or two special cases, efforts have been made to arrange that research should as far as possible be undertaken indirectly through the medium of some existing institution or through the extension of an institution rather than directly in some establishment wholly maintained by the central government. Thus, many instances could be cited, especially in the field of agricultural and medical research, in which government assistance has taken the form of capital or maintenance grants towards institutions which form departments of universities, medical schools and similar bodies. Where no such body was already in existence, government has on many occasions brought them into existence and arranged either for their being incorporated as a department of some university or for their management by independent bodies of trustees. The same policy has been followed in industrial research, but in this case it has been possible for the state to supplement it by the simultaneous adoption of a second policy designed to secure the same end. This second policy has consisted in the fostering and subvention of research associations established by particular industries for the study of the scientific problems with which they are specially concerned in the course of their business.

21. There are, however, certain classes of research where the state has found it preferable to undertake the work rather than to arrange for it to be carried out in some organisation subsidised for the purpose. Broadly speaking, research of this kind may be classified under three main headings.

22. In the first place there is the group of subjects on which research is required either as a part of the day-to-day work of the department of state or in the course of administration of the law. Clearly the technical branches of government departments must have at their disposal means of pursuing research on the subjects with which they are concerned if they are to be maintained in a state of efficiency. For example, the requirements of the General Post Office and of the Service Departments are such as to make it imperative for government itself directly to engage in radio research. Again, there are certain functions which can only be undertaken by government and which themselves involve research. Examples of work of this kind are provided by the investigations carried out by the Geological Survey and those conducted on its behalf by the Government Chemist; or to take quite a different case, by the work carried out by the National Institute for Medical Research on the attainment of stable standards of reference for biological substances of importance in the medical practice and that undertaken by the National Physical Laboratory for the standardisation of instruments. Moreover, for the purposes of administering the law, it is necessary for some departments to engage in research either on their own behalf or in the interests, and for the guidance, of local authorities charged with the actual administration of the law. Examples of research directly undertaken by government under this heading are afforded by the work of the Government Chemist in connection with the administration of the law in regard to such matters as the purity of food and drugs, and in the determination of the physical qualities of articles subject either to import duties or excise. Certain investigations undertaken at the instance of the Home Office by the Department of Scientific and Industrial Research also fall into a similar category in so far as they are concerned with the administration of statutory and other regulations. Examples of this type of investigation are provided by the work of the Department in regard to mine rescue apparatus and cylinders for compressed gases and industrial respirators.

23. The second broad class into which research directly undertaken by government may be divided is that embracing subjects research on which is of value to the community as a whole, but which are not likely to be investigated unless by government itself. Research falling into this class is of a very varied character. The first group of such subjects is naturally that concerned with the more specialised of the problems raised by national defence. Examples of other types of research falling within this class are provided by research on such subjects as the problems raised by industrial fatigue. Quite different from the foregoing but falling also in the same class is research on such matters as the treatment of industrial effluents and river pollution, and the problems of smoke abatement. Research on such subjects as these is unlikely to be carried out by industry itself except to the extent to which it can be made a source of profit. In the case of highly specialised technical questions relating to defence, the commercial risk may be prohibitive or beyond the means of the industry. In such matters as smoke pollution, etc., the objects in view may be of the greatest importance to the community as a whole, while it may nevertheless be the case that successful discoveries in these fields would bring no advantage to any individual firm in relation to its competitors.

24. The third main class of research undertaken directly by government is that which is so undertaken on rather broader grounds of national policy than in the two classes discussed above. The extent to which the government undertakes research of this type is often dependent on the degree of organisation of the profession or industry concerned. Broadly speaking, government is more likely to think it proper itself to engage in research of this type if the industry concerned is one which is organised in small units. In such industries the number of concerns sufficiently large themselves to undertake research may be very small and for some reason the industry itself may not be adapted for the conduct of co-operative research through a research association. There are, for example, cases in which there exists no compelling community of interest sufficient to lead the firms concerned to co-operate in the necessary research. The explanation may often be found in the fact that the interest to be served by the research is that of the consumer rather than that of the producer. In such cases it was natural and proper for government itself to intervene and initiate the necessary research. Another example of research of this kind is provided by the research undertaken by government in food preservation and cold storage. In this case moreover an important result of this work has been to impart a valuable stimulus to the trade in foodstuffs with the Dominions. Research of this type constitutes in effect a form of assistance by the state for the industry concerned, which may often lead to important developments, and indeed to the establishment of new industries. Finally, there are certain types of research which it has been decided should be undertaken on broad grounds of national interest.

(ii) SPECIAL PROBLEMS ASSOCIATED WITH THE DIRECT CONDUCT BY GOVERNMENT OF RESEARCH.

(a) *The need for securing the co-operation of professions and industries in research concerning their interests directly undertaken by government.*

25. Where research is undertaken directly by government two types of problem have to be solved. In the first place, the organisation has to be such as to command the confidence of the profession or industry connected with the subject on which the government proposes itself to conduct research. In the second place, the organisation must be such as to command the confidence of the scientific world and to provide conditions of work best fitted for the study of the problem concerned.

26. Where research is undertaken by government indirectly, that is through the medium of some existing organisation, no special fear need be

entertained that the profession or industry concerned will view the intervention of government with suspicion. They are already accustomed to work on their subject being conducted in the institution concerned and the fact that the scope of the work is to be increased as a result of government grants is not likely to cause them any special apprehension. Where, however, government itself decides to undertake research in an establishment of its own the problem is quite different, and special steps have to be taken, both to allay any suspicions that may be aroused in the minds of the profession or industry concerned, and to secure their whole-hearted co-operation in the work proposed.

27. The whole structure of government organisation of research in so far as it relates to the direct conduct of work by government affords proof of the appreciation by government of the importance of this problem. Thus, in the first place, great care has been taken by government to ensure the appointment of leading representatives of the professions and industries concerned to the bodies charged with the submission of recommendations to government on broad questions of scientific policy. Such representatives are to be found on the Advisory Council of the Department of Scientific and Industrial Research, the Medical Research Council, and the Agricultural Research Council. Similarly both the subordinate and more specialised bodies, whether boards or committees, established by the three main government research organisations named above are composed in large part of persons having special authority or experience in the profession or industry concerned.

28. Just as it is essential to secure the co-operation of those primarily concerned in the application of the results of research, so also is it necessary for the organisation adopted by government to be such as to command the confidence of the leading scientific authorities in the subjects to be investigated.

29. The confidence of the scientific world in this country has been secured by the appointment of leading men of science on the councils, boards, and committees discussed above. These appointments have secured to scientific men an important share in the responsibilities for the lay-out and conduct of the investigations undertaken.

(b) *The special requirements of research organisations.*

30. The fact that some particular piece of research may be undertaken direct by government and not conducted by an autonomous research institution does not mean that the work should be organised on the familiar lines of government departments. The organisation appropriate to government departments which are concerned with administrative functions is not of a kind that is suitable for a research institution, even if wholly maintained by government. The hierarchical system though essential in government departments is inappropriate in a research organisation. In such bodies the primary need is not for organisation and regimentation but rather for an atmosphere of intellectual freedom in which the scientific worker is able to approach the task set to him on the lines which he thinks best. Some degree of organisation and discipline is, of course, essential, but broadly speaking the best results will be obtained from those research organisations in which the outward forms of control are least in evidence and in which the scientific staff is encouraged to pursue its work on original lines.

31. Again, the very nature of scientific work is such that while one scientific worker may be well qualified for work of a particular kind at one stage of his career, he may become unfit for it at some later stage. The greatest flexibility of organisation is therefore required to enable scientific men to be transferred from one organisation to another, and, if possible, to arrange that they may be freely transferred to and from government and university work as circumstances may require.

32. Another risk which has to be avoided in the organisation of centralised research stations is the possibility that in time they may lose efficiency by becoming too large in size. Just as experience in industry has shown that while certain economies can be obtained by organising productive plant in large units, there comes a point beyond which any further increase in size reduces rather than increases efficiency. The same principle applies to the organisation of research institutions. It may indeed be the case, especially in research the conduct of which requires extensive apparatus or large scientific libraries, that work of a particular kind can best be carried out in a laboratory employing a considerable scientific staff. But the point is quickly reached when the increase in size of a research station may secure a less than proportionate increase in efficiency. For the value of research work carried out in any particular institution depends ultimately on the originality of outlook and the freshness of mind of the scientific staff employed.

33. Somewhat similar considerations apply to work on problems of design. There is much evidence to show that the experience of industry and commerce has been that design departments cannot be increased beyond a certain size without loss of efficiency. In the textile industries, for example, where variety of design is of especial importance, it has been found that while it is, of course, possible to increase the number of designs produced by a single organisation by increasing its size, the designs produced tend increasingly to lack variety and to bear the impress of a common model. It is for these reasons that in these industries steps are taken deliberately to limit the size of individual design departments. Similar considerations apply also to the marketing of commodities such as tobacco, where variety in publicity is of the first importance. It is to secure this variety that steps have so often been taken to maintain for purpose of marketing the identity of firms which have, for other purposes, been merged in some larger organisation.

34. The peculiarities of scientific work discussed above have been appreciated by government, and to a very large extent the normal restrictions in government service have been relaxed in the case of research institutions directly administered by the state.

IV.—THE ROLE OF GOVERNMENT IN THE FIELD OF RESEARCH.

35. It remains now to consider whether in determining its attitude to research government could have adopted some principle or principles other than those analysed in section III above, or whether the very nature of research work is such that, if government is to support effectively this branch of national activity, it is bound to follow generally the path which it has taken in this country.

36. The first point which calls for notice in this connection is that of the research of all kinds undertaken in this country to-day, the proportion directly carried out in state research establishments is relatively small. Quite apart from that research in non-governmental institutions, the conduct of which is rendered possible only by the financial assistance given by government, there still remains a large volume of research being carried on quite independently of government. This research is in part academic research of the kind described in paragraphs 16 and 17 above, and in part utilitarian research conducted either by industrial firms for their individual profit or by associations of such firms for their mutual benefit. At this stage we are confronted with the question:—Could government itself undertake the whole of the research now carried on by universities and similar bodies and by industrial firms and if so, what principles should government adopt in the organisation of research?

37. There can be no doubt that under present conditions it would be out of the question for government itself to undertake the whole of the research

now carried on by universities and similar bodies, or of the research now conducted by industrial firms. Just as government itself has found that there is some research which it must itself undertake to enable the various departments of state to carry on their ordinary day to day duties, so it would be out of the question for industrial firms to dispense with their own research establishments, for it is on those that they are absolutely dependent for the solution of the innumerable technical and scientific problems which constantly arise in the course of their work. Moreover, in the field of invention and design it is upon their own research departments that industrial firms must depend in the competitive struggle in which they are engaged with their rivals. Indeed, the question with which leaders of industry are faced is not whether their firms should maintain research departments but how best to ensure the closest possible working relations between their research departments and the actual factory or works in which the goods which they sell are produced.

38. Equally it would be impossible for government to remove from the sphere of the universities and similar bodies the research which they at present carry on, for in education research is an essential feature of university teaching. The teaching of what is known could not be divorced from the search for new knowledge without irreparable damage to the institution concerned, for it is the facilities for research which attract the best teachers to the universities and similar bodies, while in turn it is the presence at such bodies of the best teachers that draws to them the best students of each generation and thus provides the conditions requisite for an active and vigorous university school.

39. We have now to consider whether the actual organisation of research would be essentially modified if government were to decide to assume a larger measure of control. It is not enough to answer this question by replying that under some all embracing form of nationalisation the whole of these activities could and would be undertaken by government. In a sense no doubt this might be true, but so much would depend on whether the transfer of control affected the nature of existing organisation or whether it changed only its outward form that it is necessary to consider separately what action might be taken in regard to so-called academic research, and what action might be taken in regard to the research which is at present carried out by industrial firms and which must be so carried out as long as conditions of private enterprise remain.

40. We may ask first what would be the effect on the academic research at present conducted by universities, if the government were to decide to concern itself in the management of such bodies. The research work which they do might indeed in such circumstances be regarded as conducted directly by government, but it would be an error to suppose that a change in control such as we are discussing would mean that the research now conducted at universities would be transferred to specialised research institutions maintained by the central government, for, as we have seen in paragraph 33 above, research cannot be dissociated from teaching in the higher departments of knowledge unless that teaching is to lose its vigour and freshness of outlook. Thus, so far as academic research is concerned, intervention by government in the management of the universities could do no more than change the outward form under which this work is conducted. Such a change would affect chiefly the ultimate control of research which would thereby be placed in the hands of government. This transfer of control would have no obvious advantages and might well introduce that undesirable element of rigidity, which, as we have seen in paragraphs 30-34 above, it is essential to avoid. On the side of organisation, however, no substantial change would be practicable. Beneath the new form academic research would still remain an essential feature of academic teaching.

41. When we turn to the research which is at present carried out by industrial firms, we find also that the nationalisation of any industry would cause but little change in the methods by which industrial research is at present conducted. No doubt, with the elimination of competition and private enterprise there would be a concentration of productive power and a reduction in the number of units engaged in production in any given industry. To this extent, therefore, it is likely that the number of research establishments would be reduced. In answer to this, it may be claimed that while the number of establishments would be reduced, their size and effectiveness would be increased. But this argument is only valid within narrow limits. Even under the most rigorous form of nationalisation there are very definite limits to the extent to which the national output in any given industry could be concentrated in a small number of very large factories. For concentration on this scale of productive power under a single management would inevitably bring with it in an exaggerated form all those elements of waste and inefficiency which industrial concentrations have in every country shown when carried beyond a certain point. The most extreme development, therefore, which it is reasonable to anticipate might be reached would be the consolidation of the industry into a relatively small number of plants, large in size but sufficiently small to permit of efficient management.

42. In an earlier part of our discussion (paragraph 37 above) we have seen that an important factor in industrial efficiency is the maintenance at the works concerned of efficient departments for research and design. There is no reason whatever to suppose that this would cease to be true if the industry was nationalised, and we must assume, therefore, that the nationalised industrial units would each be equipped with their own departments for research and development. But it has never been suggested that government would itself undertake less research in specialised state establishments than at present. Indeed, the contrary is constantly affirmed. Our discussion brings us, therefore, to the conclusion that even if an industry was nationalised its organisation for industrial research would follow broadly the same lines as it does to-day. On the one hand, the central government would continue to maintain specialised research establishments, either for the solution of problems which require to be answered in the day-to-day course of administration or for the study in the national interest of scientific problems of a more general character. On the other hand, the nationalised factories which would have taken the place of the former industrial undertakings would still require to maintain their own research establishments. Thus, to take a concrete example, if, say, the iron and steel industry or the armament industry were to be nationalised, the national factories which would replace the factories now maintained by private enterprise would still require their own research organisations. In other words, however far nationalisation was carried, it could never reach the point where all research in a given subject was conducted by the state in centralised establishments, and where no research was conducted on the site of the productive units.

V.—GENERAL CONCLUSIONS.

43. The following general conclusions emerge from the foregoing discussion:—

(a) Research falls into two broad categories, characterised not by whether the research is pure or applied, but by the nature of the object with which it is undertaken. Of the research falling into these two categories, the first, which may be termed academic research, is undertaken solely on account of the intellectual interest of the subject to be investigated and aims at the discovery of new knowledge for its own sake. The second category of research, which may be called utilitarian research, is research which is directed towards the solution of some problem of importance either to the health of the nation, to its defence in time of war, or to its prosperity in time of peace.

(b) The conduct of disinterested academic research is pre-eminently a function of universities and museums, and of learned associations of scientific men. Research of this type is an essential part of higher education; and government can best assist in this field by the grants which it makes to universities and similar bodies as part of the general educational system of the country.

(c) Under present conditions research directed to utilitarian ends is conducted in one of three ways:—

(i) Certain forms of utilitarian research constitute an essential function of government. For research of this kind there exist research institutions maintained and controlled by the state.

(ii) A second form of utilitarian research is that which, while of great importance to the nation and therefore deserving of financial support by the state, is best conducted in universities and other institutions of a similar kind. In the main, the research supported by government falls into this class, government assistance taking the form of grants to the institutions in which the research is undertaken.

(iii) Finally, there is the large body of research and investigation (including design and development) which is conducted by industrial firms as part of their enterprise.

(d) In the event of the nationalisation of an industry, the change so far as research is concerned would be more one of outward form than of substance, since it would affect the ultimate control of research rather than the actual organisation adopted. It would be an error to conclude that the nationalisation of an industry would mean that the research at present conducted by the firms of which it is composed would be transferred to specialised research institutions maintained by the central government; for, with the degree to which science is to-day applied to industry, an important factor in the efficiency of industry, whether conducted by private enterprise or under state control, is the maintenance as part of the works concerned of efficient departments for research and design.

(Signed.) FRANCES HEMMING.

2, Whitehall Gardens, S.W.1.
14th December, 1935.

APPENDIX B.

WARSHIPS UNDER CONSTRUCTION OR ON ORDER FROM
ROYAL DOCKYARDS AND PRIVATE FIRMS RESPECTIVELY.
22ND APRIL, 1936.

Type.	In Private Yards.	In Government Yards.
Cruisers	7	4
Destroyers	26	—
Destroyers including Flotilla Leaders	4	3
Submarines	8	4
Sloops	1	—
Aircraft Carrier	6	—
Motor Torpedo Boats	2	—
Surveying Ships	1	—
Other Craft	—	—
TOTAL	55	11

NEW SHIPS TO BE ORDERED IN 1936.

Type.	In Private Yards.	In Government Yards.
Capital Ships	2	—
Cruisers	3	2
Destroyers	9	—
Submarines	3	1
Sloops	4	2
Aircraft Carrier	1	—
Gunboat	1	—
Motor Torpedo Boats	6	—
Depot Ships	1	—
Surveying Ships	2	—
Other Craft	6	—
TOTAL	38	5

APPENDIX C.

REPRESENTATIVE LIST OF CERTAIN IMPORTANT INVENTIONS RELATING TO ARMAMENTS MADE BY
ARMAMENT FIRMS OR OTHERS OUTSIDE THE DEFENCE SERVICES AND ADOPTED SUCCESSFULLY BY THE
DEFENCE SERVICES.

(A) Inventions adopted by the Admiralty.

Article.	Inventor.
Torpedo engine	Peter Brotherhood, Ltd.
Torpedo discharge from coastal motor boats.	J. I. Thornycroft & Co.
Depth charge thrower ...	Thornycroft.
Electrical direction indicator systems for gun control.	Evenshed & Vignoles.
The B.L. gun	Armstrongs.
The Wells breech screw ...	—
The De Range obturator ...	—
Built-up guns	Armstrongs.
Wire wound guns	Armstrongs.
The Maxim gun	—
The semi-automatic gun ...	Vickers.
Nitrocellulose propellants ...	Nobel.
Rangefinders	Barr and Stroud.
Rangefinding clock	Vickers.
Range and deflection transmitters.	Vickers, Barr and Stroud.

A large amount of research into the best steel and the best treatment of the steel for armour piercing shell has been done by Hadfields, Firths, Vickers and Armstrongs.

The destroyer and torpedo boat evolved from vessels originally designed and built by Messrs. Thornycroft and Yarrow for navies other than our own.

The submarine developed from the Holland design of the Electric Boat Co. of America.

The coastal motor boat designed and built during the War by Messrs. Thornycroft, utilising a stepped form of hull suggested by the Rev. Ramsay in 1870.

Ship armour developed by the three firms engaged on its production in this country, each of whom has its own methods and composition.

The steam turbine invented by Sir Charles Parsons, who also introduced the use of gearing between the turbine and propeller-shafts and improved the turbine's efficiency as an agent of propulsion.

Small tube boilers designed by Yarrow and others and developed principally for use in fast torpedo craft, but now utilised in larger warships.

The heavy-oil engine, designed by Diesel and developed by many firms, rendered the surface navigation of submarines a much safer operation than with petrol engines.

Gyro-compass invented by Anschütz (German), Sperry (U.S.A.) and Brown of Great Britain.

Periscopes, invented by a German but developed amongst others by Barr and Stroud, which made the submarine an effective naval weapon.

Hydraulic speed gears to transmit power at varying numbers of revolutions in either direction. Williams-Jennoy (U.S.A.) and Holt-Staw (British) are types of this gear which have been utilised in warships for various purposes.

Telemotor-control, introduced by Brown of Edinburgh and extensively developed by McTaggart, Scott & Co., for use in submarines.

Special quality steels and light alloys of great use in reducing weight in recent warships.

N.B.—The above list includes certain inventions—e.g., the steam turbine—which were not primarily, or at any rate

not exclusively, designed for warship or other armament purposes. It has been thought desirable to mention these, however, because of their important application to Naval purposes.

(B) Inventions adopted by the War Office.

Article.	Inventor.
Trench mortar	Stokes.
Tanks	A joint product.
Height-finders	—
Range-finders	Barr and Stroud.
Modern tanks	—
Predators	—
Vickers gun	Vickers-Armstrongs.
Vickers-Berthier gun	—
Lewis Gun	Through B.S.A. Company.
Hand grenade	Mills.
Hand and rifle grenades ...	Hale.
Explosive bullet	Pomeroy.
Trooper bullet	Blackburn.
Combined tracer and explosive bullet.	Threlfall.
Military bridges	Ingles and Hamilton.
Wireless apparatus	Marconi, Lodge and others.
Manufacturing processes and machines for shells, explosives, mustard gas, etc.	Various firms.
Fuses	Krupp.
and more recently the Bren Light Automatic.	Coskunslovenska Zbrojka.

(C) Inventions adopted by the Air Ministry.

Article.	Inventor.
Trooper bullet	Mr. J. F. Blackburn.
Kite balloons	Dr. E. Prussner and Major L. Avorio.
Synchronising gear	Sopwith Ltd.
Air Speed indicators	Smith & Sons, Ltd.
Turnbuckles	Blackburn Aeroplane and Motor Co., Ltd.
Carburettors	Hobson Ltd.
Incendiary bullet	Mr. J. Pomeroy.
Improvements in helmets for aviators.	Mr. C. H. Curtis.
Course setting bomb sight	The Argo Co., Ltd., and others.
Bomb release gears and control mechanism.	Mr. A. H. Glodhill.
Fabrics for the gussets of aircraft.	Vickers Ltd.
Slips forming part of bomb releasing gear.	Handley Page Ltd.
Aeroplane compasses	Henry Hughes & Sons Ltd.
Aircraft compensation sights.	W. A. Burns.
Dynamos for aeroplanes	Joseph Lucas Ltd.
Dynamos for aeroplanes	Mr. H. Leitner.
Synchronising gears	Messrs. G. Constantinou and W. Haddoo.
Synchronising gears	Captain V. V. Dibovsky.
Carburettors and diffusers	Messrs. H. M. Hobson.

(c) *Inventions adopted by the Air Ministry (cont.)*

Article.	Inventor.
Stabilising gear (for bomb-sights).	Professor J. G. Gray.
Aircraft propellers ...	Mr. W. D. Oddy.
Aircraft propellers ...	Mr. H. C. Cleaver.
Metallic machine gun belts	Mr. W. de Courcy Pridoux.
Improvements relating to valve gear for revolving cylinder internal combustion engines.	Mr. Bateman Scott.
Improvements relating to firing mechanism of fuses.	Mr. G. L. McAlpine and Messrs. J. J. Griffin & Sons Ltd.
Improvements in welding aluminium.	Aktiengesellschaft für Autogine Aluminium Schweissung.
Muzzle attachments for Vickers guns.	Captain V. V. Dibovsky.
Aerial Bombs.	Mr. F. Marten Hale.
*Wire balanced ring mountings.	Vickers Ltd.
Improvements in flying boats.	Mr. Norman A. Thompson.
"Caquot" balloon.	Mon. A. I. Caquot.
Recall reinforcement for Vickers gun.	Mon. Marcel Bergoin.
Wind Vane Sights ...	Mon. Y. Le Prieur, M.C.
*Means of carrying and releasing bombs from aircraft.	Blackburn Aeroplane and Motor Co., Ltd.

* Post-War inventions.

(c) *Inventions adopted by the Air Ministry (cont.)*

Article.	Inventor.
*Aeroplane engines ...	De Havilland Aircraft Co., Ltd., and Major F. B. Halford.
*Thread gauges ...	A. C. Wickman, Ltd.
*Balanced ailerons ...	Bristol Aeroplane Co., Ltd.
*Kegress track attachments.	Citroen-Kegresse, Ltd.
Aldis unit sight ...	Aldis Bros.
Slotted wings ...	Handley Page, Ltd.
Gyro turn indicators ...	Dr. F. W. Lancaster.
Constant bubble levels ...	E. R. Watts & Son, Ltd.
Engine starter clutches ...	Mortley Sprague, Ltd.
Seaplane trolleys ...	Blackburn Aeroplane and Motor Co., Ltd.
Metal propeller hubs ...	Metal Propellers Ltd.
Claw release slips for bomb carriers.	Vickers-Armstrongs, Ltd.
Gun mounting ...	Fairley Aviation Co., Ltd.
Differential aileron control	De Havilland Aircraft Co., Ltd.
Petrol gauges ...	Televel Ltd.
Engine starters ...	Rotax, Ltd.
Obso legs for aeroplanes ...	Vickers (Aviation), Ltd.
Nozzles for fuel filling stations.	Zwicky, Ltd.
Balanced ailerons ...	Handley Page, Ltd.
Wing tip flare brackets ...	Nash & Thompson, Ltd.
Lifting jacks for torpedo trolleys.	Universal Jacks, Ltd.

* Post-War inventions

APPENDIX D.

EXPORTS OF AIRCRAFT, ENGINES AND SPARE PARTS FROM THE UNITED KINGDOM.

Year.	Aircraft.		Engines.		Spare Parts.	Total Value.
	No.	Value.	No.	Value.	Value.	
		£		£	£	£
1930 ...	317	601,287	532	339,541	906,093	2,049,921
1931 ...	304	778,568	365	413,328	608,302	1,860,198
1932 ...	302	641,428	432	467,008	633,048	1,741,484
1933 ...	234	474,897	409	448,321	542,447	1,465,675
1934 ...	298	746,550	478	562,643	582,925	1,922,118

Taken from annual reports on Progress of Civil Aviation and corrected from Trade Returns.

APPENDIX E.

TABLE A.

EXPORTS FROM THE UNITED KINGDOM TO FOREIGN COUNTRIES DURING 1933 AND 1934 IN THOUSANDS OF £ STERLING.

Categories.	1933.		1934.	
	War material and explosives.	Sporting arms and ammunition.	War material and explosives.	Sporting arms and ammunition.
Guns, howitzers, mortars and parts thereof ...	283.5	—	118.8	—
Automatic machine and Q.F. guns and parts thereof ...	233.5	—	167.9	—
Gun mountings, carriages, and parts thereof ...	63.4	—	28.0	—
Military rifles and carbines ...	21.2	—	10.5	—
Revolvers and pistols ...	.7	—	2.5	—
Miniature and cadet rifles, air guns and rifles ...	—	1.3	—	1.8
Swords, bayonets, etc. ...	3.4	—	1.0	—
Sporting guns, carbines and rifles ...	—	12.1	—	17.5
Tubes for barrels, actions and parts for small arms	4.8	—	5.3	—
Torpedoes and submarine mine appliances ...	137.7	—	25.0	—
Military, naval and ordnance stores not elsewhere specified ...	511.7	—	263.1	—
Ammunition: shot, and shell and m.g. cartridge cases ...	117.6	—	151.2	—
S.A.A.: loaded and empty cases ...	236.2	—	80.5	—
Percussion caps, safety fuse and blasting accessories ...	101.5	—	146.4	—
Propellant powders ...	.4	—	7.3	—
Smokeless sporting powder ...	—	.5	—	4.4
High explosives ...	172.1	—	164.0	—
Explosives and ammunition not elsewhere specified ...	102.4	—	106.7	—
Rockets and pyrotechnics ...	1.1	—	2.4	—
Sporting ammunition ...	—	80.6	—	57.6
	2,011.2	103.5	1,283.6	81.3

TABLE B.

EXPORTS OF ARMS, AMMUNITION AND EXPLOSIVES (EXCLUDING SPORTING ARMS AND AMMUNITION FOR COUNTRIES MAKING THIS DISTINCTION) TO FOREIGN COUNTRIES DURING 1933 AND 1934 IN THOUSANDS OF GOLD DOLLARS.

Exporting countries.	1933.				1934.			
	Aggregates	Percentage to Colonies.	Corrected totals.	Percentage.	Aggregates	Percentage to Colonies.	Corrected totals.	Percentage.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Belgium	1,444	2.4	1,409	4.4	2,131	1.9	2,091	6.0
Czechoslovakia	3,181	—	3,181	10.0	8,706	—	8,706	25.2
Denmark	633	—	633	2.0	404	—	404	1.2
France	8,486	6.3	7,951	24.9	7,090	7.8	7,367	21.3
Germany(1)	982	—	982	3.1	952	—	952	2.8
Holland(7)	1,402	51.5	680	2.1	968	66.7	302	.9
Italy	1,432(2)	2.6(3)	1,414	4.4	1,585(2)	2.6(3)	1,554	4.5
Japan(1)	218	7.6(4)	201	.6	180	17.2(4)	149	.4
Norway(7)	695	1.0	688	2.2	671	1.3	662	1.9
Spain(7)	342	38.2	211	.7	256	44.5	142	.4
Sweden	3,404	—	3,404	10.7	3,736	—	3,736	10.8
Switzerland(7)	1,192(5)	—	1,192	3.7	937(5)	—	935	2.7
U.K.	20,128	34.2	6,654	29.9	—	—	3,851(6)	11.1
U.S.A.(7)	3,246	8.7	2,964	9.3	3,720(8)	8.7(9)	3,300	9.8
Add for other countries 1 per cent.	—	—	319	1.0	—	—	346	1.0
	—	—	31,883	100	—	—	34,593	100

Notes.—References, League of Nations year book (1935) on Trade in Arms—Cols. (b) and (f) from p. 196, Cols. (c) and (g) from tables in Part I.

(1) Explosives only declared.

(2) Excludes blasting powder.

(3) Percentages for 1932 taken.

(4) To Kwantung.

(5) Corrected to include fireworks as for other countries.

(6) The provisional United Kingdom figures for 1934 (9,553.5) given on p. 196 of League of Nations year book include 57 per cent. exports to British Dominions and Colonies and also include sporting arms and ammunition. The correct figures for 1934 (£1,293,000) have been furnished by the Board of Trade and converted to gold dollars at 3 to the £.

(7) Includes sporting arms and ammunition.

(8) Provisional figure.

(9) Percentage for 1933 taken (to Philippines).

TABLE C.

PERCENTAGES OF WORLD EXPORTS IN ARMS, AMMUNITION AND EXPLOSIVES (EXCLUDING SPORTING ARMS AND AMMUNITION FOR COUNTRIES MAKING THIS DISTINCTION) DURING 1929 TO 1934.

Exporting countries.	1929. Per cent.	1930. Per cent.	1931. Per cent.	1932. Per cent.	1933. Per cent.	1934. Per cent.
Belgium	5.7	4.9	4.8	5.1	4.4	6.0
Czechoslovakia	6.0	11.7	13.5	5.0	10.0	25.2
Denmark	2.9	2.4	1.4	0.7	2.0	1.2
France	15.4	12.3	6.0	29.4	24.9	21.3
Germany(1)	4.7	4.5	5.2	3.5	3.1	2.8
Holland(3)	2.3	3.6	0.3	5.4	2.1	0.9
Italy(2)	6.9	8.2	7.7	1.9	4.4	4.5
Japan(1)	0.1	2.1	0.3	—	0.6	0.4
Norway(7)	1.3	1.2	1.0	0.6	2.2	1.9
Spain(3)	5.5	3.3	1.2	0.8	0.7	0.4
Sweden	5.6	9.5	12.7	12.8	10.7	10.8
Switzerland(3)	1.4	2.6	4.3	2.7	3.7	2.7
U.K.	21.8	19.9	28.1	27.9	20.9	17.1
U.S.A.(3)	19.4	13.7	12.5	9.2	9.3	9.8
Other countries (assumed per cent.)	1.0	1.0	1.0	1.0	1.0	1.0
	100.0	100.0	100.0	100.0	100.0	100.0
Value of World Trade in thousands of gold dollars	53,143	44,875	29,012	29,088	31,883	34,593

(1) Explosives only declared.

(2) Excluding blasting powder.

(3) Including sporting arms and ammunition.

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

21

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

TWENTY-FIRST DAY

WEDNESDAY, 20TH MAY, 1936

WITNESSES—

VICE-ADMIRAL SIR REGINALD G. H. HENDERSON, K.C.B., Admiralty
SIR WALTER ST. D. JENKINS, C.B., C.B.E., Admiralty
LT.-GEN. SIR HUGH J. ELLES, K.C.B., K.C.M.G., K.C.V.O., D.S.O.,
War Office
SIR REGINALD TOWNSEND, K.C.B., C.B.E., A.C.A., War Office
MR. F. C. BOVENSCHEN, C.B., War Office
AIR MARSHAL SIR HUGH C. T. DOWDING, K.C.B., C.M.G., Air
Ministry
MR. B. E. HOLLOWAY, C.B., Air Ministry

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LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (*a*) by the United Kingdom alone, (*b*) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TWENTY-FIRST DAY

Wednesday, 20th May, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Vice Admiral Sir REGINALD G. H. HENDERSON, K.C.B., Third Sea Lord and Controller of the Navy;

Sir WALTER ST. D. JENKINS, C.B., C.B.E., Director of Navy Contracts;

Lt. Gen. Sir HUGH J. ELLIS, K.C.B., K.C.M.G., K.C.V.O., D.S.O., Master-General of the Ordnance;

Sir REGINALD TOWNSEND, K.C.B., C.B.E., A.C.A., Director of Ordnance Factories;

Mr. F. C. BOVENSHEN, C.B., Director of Finance, War Office;

Air Marshal Sir HUGH C. T. DOWNING, K.C.B. C.M.G., late Air Member for Research and Development;

Mr. B. E. HOLLOWAY, C.B., Director of Contracts, Air Ministry;

called and examined.

4471. *Chairman*: I see there are a number of you gentlemen here in response to a request by the Commission that we should be supplied with the views of the different departments upon certain specific questions, and you have been good enough to supply us with the statements* that we asked for. I will just enumerate them. There is first of all a joint memorandum by the Admiralty, the War Office and the Air Ministry in reference to the increase of efficiency in the supply of armaments. There is a memorandum by the Admiralty, the War Office and the Air Ministry on the proposal to set up a National Armaments Board. There is a joint memorandum by the Admiralty, War Office and Air Ministry, in consultation with the Board of Trade, on the proposals for partial nationalisation of the armaments industry. There is a memorandum by the Admiralty on the cost of nationalisation, a memorandum by the War Office on the same subject, and also a memorandum by the Air Ministry on the same subject. There is a memorandum by the Admiralty on comparative costs of building

war vessels in His Majesty's dockyards and in private yards, and a memorandum by the War Office on comparative costs of production of armaments by government establishments and private firms. There is a memorandum by the Admiralty on contracts for armaments, and a memorandum by the War Office on the same subject, and a memorandum by the Air Ministry on the same subject. There is a joint memorandum by the Admiralty, War Office and Air Ministry on allegations of bribery, a joint memorandum by the Admiralty, War Office and Air Ministry on inventors in the service of His Majesty's Government, and lastly there is a joint memorandum by the Admiralty, War Office and Air Ministry on the question of secrecy of government designs under private manufacture. Now, gentlemen, it it would suit you, I think that the method of dealing with these memoranda that we should prefer would be that someone should read to us each memorandum separately and deal with each one separately, and then any member of the Commission might ask any question he thought fit. Does that meet with your approval? Then would somebody begin by reading the first one.

* See p. 687.

The following memorandum was read:

I. CERTAIN SUGGESTIONS MADE BEFORE THE ROYAL COMMISSION FOR THE INCREASE OF EFFICIENCY IN THE SUPPLY OF ARMAMENTS.

JOINT MEMORANDUM BY THE ADMIRALTY, THE WAR OFFICE AND THE AIR MINISTRY

1. Mr. Walton Newbold has suggested a drastic redistribution of our factory organisation. He also advocates the purchase and storage of certain reserves of ores and metals, in case of a partial blockade of this country. The security of the supply of raw materials from abroad is a problem which is continually under review by the departments concerned, and it is presumed that the Royal Commission do not desire to know what precisely are the arrangements made and the precautions taken.

2. But the chief proposal put forward by Mr. Newbold is that which relates to redistribution and re-organisation. He suggests that a large number of

small manufacturing units should be prepared in widely scattered spots at various stages of readiness from paper plans to completely equipped factories. Moreover, since the money market would be unlikely to provide funds for private enterprise to erect these, they should be built and owned by the state. The chief—if not, indeed, the only—reason given for erecting most of these in peace and for splitting the factories into small and scattered units is the danger of aerial attack. It is unnecessary to state that this danger is under continuous consideration by the departments concerned. The matter is of great intricacy; it is necessary to determine the relative immunity of various localities, and, that

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being determined, to balance against that factor the needs of industrial co-ordination, of accessibility, of labour supply, and indeed of the whole organisation and co-ordination of armament supply in general. The question of the amount of risk to be taken is ultimately one of policy on which it is not possible for the departments to make any pronouncement. Moreover, Mr. Newbold's plan appears to involve the withdrawal of private industry to a considerable degree from active participation in defence preparations. This would involve a diminution in the skilled labour available; and a quantity of empty factories, however up-to-date in equipment, is of little use without the labour required to operate them.

3. Sir Eric Geddes and Admiral Bacon have advocated the setting up of a "shadow" ministry of munitions and General Bingham also mentioned such a proposal. The Commission are aware, from the statement made to them by the Secretary of the Committee of Imperial Defence, of the general lines on which the control and planning of armaments supply is now organised. As regards the actual personnel to be employed in the departments or department during a war, with which Admiral Bacon's evidence was largely concerned, the subject falls within the general problem of the expansion of government departments in war. In this connection the need of keeping in close touch with the leaders of industry has by no means been lost sight of, and the government frequently has the benefit of the advice of such persons, either from time to time or on a continuous basis. Some of the witnesses do not seem to be aware of the very large amount of

discussion and consultation on the problem which is proceeding day by day and the extent to which men with practical business experience are engaged in it. The planning of the organisation of industry for munition production in time of war, mentioned by Sir Eric Geddes, is a task to which the appropriate organ of the Committee of Imperial Defence is applying itself, and the machinery at its disposal appears to be performing its functions satisfactorily; if necessary, it will, no doubt, be developed to overcome any deficiencies which become apparent.

4. In the course of his evidence (which is entirely directed to the maintenance of private manufacture and ensuring its efficiency for war expansion), Sir Eric Geddes made the interesting suggestion that it would be well worth while to set up a research laboratory to make sure that the possibilities of mass production were fully taken into account in considering any invention, and to work out in detail the precise manufacturing procedure of maximum simplicity by which the stores in question should be produced in quantity. The necessity of having detailed descriptions of the stores to be produced by private industry in war is fully realised, and work is proceeding on these lines in the preparation of very detailed manuals describing the process of manufacture of warlike stores. Further, the exploration of more effective means of production and improved machinery has not been lost sight of. But Sir Eric's very full exposition suggests further possibilities that merit, of course, careful consideration in the proper quarter. His proposals would involve expenditure which up to date has not been possible.

4472. *Chairman*: There is only one question I wanted to ask and that is by way of explanation. It is in the last four lines of your paragraph 3, where you say: "The planning of the organisation of industry for munition production in time of war, mentioned by Sir Eric Geddes, is a task to which the appropriate organ of the Committee of Imperial Defence is applying itself." What is meant by the word "organ"?

Sir Hugh Elles: That is the Supply Board. I think Sir Maurice Hankey explained the organisation of that.

4473. *Chairman*: You call it an organ. I thought perhaps it was a publication. It is a department.

Sir Hugh Elles: It is a committee.

4474. *Chairman*: May I take it in this case and in the others that this represents the considered view of these departments? That is correct, is it?

Sir Hugh Elles: Yes.

4475. *Chairman*: After consideration of the evidence that has been given before this Commission?

Sir Hugh Elles: There is one point. Some of these memoranda were prepared nearly a year ago; some more recently. They are not entirely up-to-date in the light of evidence given subsequently to their preparation. It has not been possible to do that, I think.

4476. *Chairman*: But you have considered the evidence which has been given subsequently?

Sir Hugh Elles: Oh, yes.

4477. *Chairman*: And you have not considered it necessary or desirable to alter this in any way?

Sir Hugh Elles: No, I think that is correct.

4478. *Chairman*: I mean, is it still the view, in spite of the fact that it was prepared before all the evidence had been given?

Sir Hugh Elles: It is rather difficult to say. I could not say in every case. These memoranda were drawn up by inter-departmental committees in the stress of a good deal of other work and I cannot say that they are up-to-date in every instance; but broadly they do state the opinion of the three departments.

4479. *Sir Thomas Allen*: You do say in the concluding paragraph of the sentence referred to by

the Chairman that this organisation, whatever merits it may have, "appears to be performing its functions satisfactorily". Now I take it that upon that organisation or committee all the three services are represented?

Sir Hugh Elles: That is so.

4480. *Sir Thomas Allen*: And you would know really what is happening and what preparations are being made. That word "appears" seems to us to be rather vague and leaves a doubt in our own minds as to whether the services are satisfied with the progress that is being made.

Sir Hugh Elles: All of us on this front bench are on that committee.

4481. *Sir Thomas Allen*: Could you modify that word "appears" for us in any way and give us some stronger assurance with regard to the position?

Sir Hugh Elles: I think we could say "is". I think my colleagues would agree to that.

Sir Walter Jenkins: Certainly. Of course, since this memorandum was written we have had a minister appointed for the co-ordination of defence, and he has made a certain amount of headway in handling the matters referred to in this organisation.

4482. *Sir Thomas Allen*: Would the Minister for Co-ordination of Defence be acting entirely independently of the Defence Committee as now established?

Sir Walter Jenkins: No, certainly not.

4483. *Sir Thomas Allen*: In co-operation?

Sir Walter Jenkins: In co-operation.

4484. *Professor Gutteridge*: Have you been hampered at all by financial considerations? I am referring to the concluding words of this section. When you are considering Sir Eric Geddes' proposals you seem to think that you would rather like them but you are afraid you cannot get the money for them.

Sir Hugh Elles: Not now. To have that in operation now it would have had to be started three or four years ago. At that time there would not have been a hope of getting the money for it. All research establishments, for example, in 1931 had an arbitrary cut put upon them.

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4485. *Professor Gutteridge*: Yes. You use the words "up to date." That is what is puzzling me a little bit.

Sir Hugh Elles: I think we could get the money for that now.

4486. *Professor Gutteridge*: You could if necessary?

Sir Hugh Elles: Yes, if necessary.

4487. *Sir Thomas Allen*: But what is there in Sir Eric's suggestion which involves very huge and insurmountable expense? I see that in answering Dame Rochd, when she queried him in respect to his plan, he said, "If needed suddenly for war so that you know what tools, jigs and gauges will be necessary for quickly increased output so that producers can jump promptly into production, you supply the jigs and gauges and put them on to the machines, your gauges are all got ready for you, planning all the things which the Ministry did in the middle of the War, arranging those things that are essential and programming to ensure that nothing like what happened in the last war should again happen." Where is the expense involved in the planning arrangements as suggested by Sir Eric that is insurmountable from the expense point of view, in your view?

Sir Hugh Elles: There is no expense in the planning.

4488. *Sir Thomas Allen*: What he really asked for is to be ready.

Sir Hugh Elles: To be ready, yes. He demanded a research laboratory, which means a building and new plant. That means staff. That is where the expense comes in. What it would be I am not prepared to say.

4489. *Sir Thomas Allen*: Have you any idea?

Sir Hugh Elles: Not the least. It is not insurmountable.

4490. *Sir Thomas Allen*: Surely in view of the enormous national expenditure as contemplated it would be a very infinitesimal item, would it not?

Sir Hugh Elles: It would.

4491. *Sir Thomas Allen*: And reasonable to ask for in the way of preparation?

Sir Hugh Elles: Yes.

4492. *Professor Gutteridge*: I gather you are in favour of it from the tenor of this?

Sir Hugh Elles: I am, yes.

4493. *Mr. Spender*: Do you mean that that proposal is now actually under consideration?

Sir Hugh Elles: It is actually under consideration. You will probably like to hear from the Director of Ordnance Factories what actually is going on in that direction and has been going on for some time.

4494. *Sir Thomas Allen*: Sir Eric rather gave us the impression that his proposal would be an economy and a simplification of many services now scattered, which would not, except temporarily, involve a larger but rather a smaller expense. That is the impression he gave us.

Sir Reginald Townsend: There may be a little confusion over the expression "research laboratory." I am taking it for the moment to mean manufacturing research. I think that that was perhaps how the evidence was given.

4495. *Professor Gutteridge*: I think what he meant was putting mass production to the test.

Sir Reginald Townsend: The Ordnance Factories at their minimum numbers are the lowest from which we can expand for production and the lowest point at which we can keep the various crafts alive to keep up our various productions. We carry out in the Ordnance Factories a large amount of experimental work which is somewhat on the same basis; and I might add that the Ordnance Factories are generally for all intents and purposes fairly large manufacturing research departments. We carry out a considerable amount of experimental work, and where the work lends itself we confine shops entirely to experimental work, such as the experimental fuse shop, the experimental tank and carriage shop,

and the experimental shell and bomb shop. As regards the development of manufacture, we naturally carry it out at the earlier stages on what one might term a semi-tool room or semi-mass production method, and subsequently we lay it out on mass production methods, setting out and studying operation times, processes, and so forth.

As regards certain other types of work, such as the manufacture or experimental manufacture of big guns, you will naturally appreciate that this does not lend itself to an experimental shop pure and simple, as the plant is so expensive and large that we have to carry it out on the ordinary production plant. That, I think, is obviously inherent in the job. Another point is that when the job has passed from the experimental to the accepted stage in the service as a store, when made in the Ordnance Factories from the drawings, the superintendent of the particular factory examines the drawings from the manufacturing point of view and certifies them from that point of view to cover manufacturing difficulties. We have, of course, many instances where we lay out first of all on semi-mass production lines and then mass production lines, such as rifle, T.N.T. plant, and so on.

A further point which has been raised this morning is with regard to the manufacturing information. We have a special section under this directorate for the preparation of process manuals. These process manuals are intended to act as a guide to those manufacturers who are not familiar with armament manufacture. They set out in addition to the sequence of operations the class of labour involved, the operation times, the type of plant involved, the jigs, tools and gauges with the necessary drawings and blue prints and also the material. In that connection I have brought two process manuals (handed in), one for empty shells, one for fuses, which I thought the Commission might like to look at.

4496. *Sir Philip Gibbs*: How recent are they?

Sir Reginald Townsend: They are up to date.

4497. *Sir Philip Gibbs*: How long have you been preparing these manuals?

Sir Reginald Townsend: We started some five years ago.

4498. *Sir Philip Gibbs*: As long as that?

Sir Reginald Townsend: Unhurried.

4499. *Professor Gutteridge*: Do you do this spasmodically?

Sir Reginald Townsend: We have an expert staff continuously on it.

4500. *Professor Gutteridge*: Working all the time?

Sir Reginald Townsend: Yes, a highly trained technical staff.

4501. *Sir Thomas Allen*: The position has materially altered since Sir Eric Geddes' time?

Sir Reginald Townsend: Entirely.

4502. *Sir Thomas Allen*: Because he does say, "They never had anybody who understood mass production to look at any of their articles."

Sir Reginald Townsend: Well, I cannot express an opinion on that; I was not in the government service at that time; but I should doubt that statement very much.

4503. *Sir Thomas Allen*: Well, your answer to it is that the position has considerably altered since that time?

Sir Reginald Townsend: Well, we are doing it to-day, I can say. May I add one other remark, that the use of these process manuals is supplemented by personal contact between the manufacturers and these particular experts who keep them up to date. The position with regard to premises is rather vital in that our experts, through the directorate of contracts, arrange to visit the firms, they discuss with the firms the type of manufacture that is suitable, they also discuss the plant required and the plant the firm have, and subsequently agree with the firm as to the type of article and the quantities they should manufacture in emergency.

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4504. *Sir Philip Gibbs*: Can an ordinary engineering firm have one of these manuals and produce the goods after some advice?

Sir Reginald Townsend: Yes, if it is suitable for that type of work.

4505. *Professor Gutteridge*: May I ask you one other question on this? As I understand it, you only make certain kinds of armament in the Ordnance Factories; there are certain things which you do not make?

Sir Reginald Townsend: We make most things apart from certain special stores. We do not make optical stores; we do not make electrical work.

4506. *Professor Gutteridge*: Do not think I am casting any reflection on your methods or anything of that kind, only I am wondering if there is a gap or not, if there are certain types of armament which are not covered by this excellent service which you have detailed to us.

Sir Reginald Townsend: In point of fact we make almost everything. There was one type which we did not make, but in that case we went out and arranged with the trade who made this particular type and we created the process specification. It was to cover that particular gap.

4507. *Professor Gutteridge*: I am limiting myself to what is not covered for the moment. You are satisfied in your own mind that the system you have adopted covers everything that is required to be made by mass production?

Sir Reginald Townsend: Yes, I think so, and not only by mass production but by semi-mass production, because many of our stores are not mass production.

4508. *Chairman*: I want to ask, if I may, about these manuals. I have been handed up these two manuals. They are marked "Secret." Are they now available for the private firms or are they only to be issued in case of emergency?

Sir Reginald Townsend: In the case of a private firm that is scheduled to make a certain article they may hold one of those. They hold one of those in secret as a secret document.

4509. *Chairman*: But I mean, have they been issued for some time past or only quite recently to any private firm?

Sir Reginald Townsend: The last four years.

4510. *Chairman*: In that sense you have been working in collaboration with private firms?

Sir Reginald Townsend: Definitely, for four or five years. The first year was more or less occupied in making up the documents. After that we started to visit the trade.

4511. *Sir Philip Gibbs*: Sir Maurice Hankey suggested that there were various articles which were not made at Woolwich for army purposes, but I imagine that you could make these articles if they were required?

Sir Reginald Townsend: It would be rather difficult. They are rather of a specialist nature, like, I would suggest, optical supplies, wireless and electrical apparatus.

4512. *Sir Philip Gibbs*: In regard to gun mountings and so forth, you could make the very large-sized mountings if you required to do so?

Sir Reginald Townsend: Well, we make the 16-in. guns, we make the transferable mounting. It is possible, I suppose, to make the non-transferable, but it would cost a certain amount of money for pits and so forth.

4513. *Professor Gutteridge*: I suppose in the case of gun sights, for instance, you would have to adopt some other method; the method which you have outlined would not be applicable in the case of highly technical stores of that kind?

Sir Reginald Townsend: That is so.

4514. *Sir Thomas Allen*: Then we may take it that Sir Eric Geddes' position in this respect is met when he says they would be doing original research work in your manufacturing methods with a view to organising mass production?

Sir Reginald Townsend: Definitely, all that class of work which we manufacture.

4515. *Sir Kenneth Lee*: May I ask whether your committee deals with questions of priority?

Sir Hugh Elles: Yes, it will deal with questions of priority. Up to date they have not arisen. We have no doubt that it will deal with them.

4516. *Sir Kenneth Lee*: But would the committee itself be entitled to say to one department, "You have second or third priority"?

Sir Hugh Elles: The committee really would allot suitable firms to departments, and as far as possible we try not to tread on each other's toes; but there may possibly arise a shortage of any particular commodity, it may be in the half-run stage or it might even be in the raw stage, and the committee, I take it, now under the Minister for Co-ordination, who is the chairman of it, would give the priority subject to the government.

4517. *Sir Kenneth Lee*: It is intended that he should do that work?

Sir Hugh Elles: Yes.

4518. *Chairman*: Thank you. Well, I think that finishes your first memorandum, and now we will take the second one, the proposal to set up a National Armaments Board.

The following memorandum was read:

II. THE PROPOSAL TO SET UP A NATIONAL ARMAMENTS BOARD.

JOINT MEMORANDUM BY THE ADMIRALTY, THE WAR OFFICE AND THE AIR MINISTRY.

1. As envisaged by the League of Nations Union, the National Armaments Board would be:

(a) A non-political body and free from political influence and control.

(b) Composed largely, it is suggested, of persons having no connection with the three Services.

(c) Charged with the duty of placing orders with government factories and private factories licensed by the Board, and with inspection.

(d) Charged with the duty of acting as agents for the similar Boards set up in other countries. These functions appear open to grave objections.

2. If 1 (a) above means, as it apparently does, that the Board would not be answerable to Parliament through a Minister, it is surely out of the question. It is inconceivable that Parliament would surrender all control of a vast spending department.

3. If the majority of members have no service experience nor, it is presumed, experience of armament firms, it is difficult to see how the Board

could be considered competent to do its work. Indeed, it seems probable that it would tend to ignore its first duty, the provision of material for the safe defence of the country.

4. It is proposed that the Board shall take over the existing contracts machinery of the three Services, and be responsible for the placing of all orders. There is a suggestion that this course would eliminate the discrimination which it is alleged has been made by departmental officers in the allocation of orders to private firms. For the purpose of the present memorandum the emptiness of the allegation may be disregarded. The immediate point is that it is not clear why the alleged methods of the existing contracts departments should be changed on transfer from ministerial control to the control of a National Board. If the suggestion is that the change in the hands, under whom the contracts department were to work, would result in such a change of methods, somewhat more definite reasons for this suggestion

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than have as yet been adduced seem necessary. It is hardly reasonable to suppose that a Board, with its unfettered powers and with no responsibility to Parliament, would be less liable to improper influence than Ministers of the Crown responsible to Parliament for the work and methods of their departments.

5. The Board would control supply and inspection, but not design. This division between inspection and design might prove embarrassing; indeed the user departments might have to duplicate the machinery for inspection.

6. There are strong objections against the divorce between supplier and user entailed by the scheme. At present the responsibility for the supply of armaments rests upon the service departments, who use them. The design of a warship, for example, is based upon the most careful analysis of staff requirements, which in its turn is based upon analyses of exercises, foreign progress, tactics as determined by progress in weapon design and other considerations, which are related to the technical possibilities within the available tonnage (at present limited by treaty) by close discussion with the naval architects in the Directorate of Naval Construction. These architects in their turn have to maintain the closest collaboration with other departments responsible for the design of important parts of the ship, such as her engines or armaments. It would be impossible for this complex and vital task to be carried out satisfactorily by an authority which had no responsibility for fighting the ships at sea, and no direct communication even with the staffs afloat. It is pertinent to recall that in 1891 it was found imperative in the interests of efficiency, to transfer responsibility for the supply of naval guns to the users, i.e., the Admiralty, and that a similar course was taken in respect of torpedoes in 1910-12.

7. Again, it not infrequently happens that a defect is discovered in an aircraft in service which necessitates all the aircraft of that type being suspended from flying until the defect is remedied by the introduction, and incorporation into the aircraft in service, of an appropriate modification. It would be intolerable to have to resort to an independent Armaments Board before such action could be taken. Such modifications affect not only existing aircraft but also those under construction and often involve considerable expenditure, which is, however, necessary in the interests of the safety of flying personnel.

8. It is not disputed that proper co-ordination between the departments must be maintained. It is, indeed, an essential feature of their existing practice and there is in being an elaborate and

active organisation to that end now under the control of a Minister specially appointed for the co-ordination of the Services. Moreover, circumstances might well arise which would render it necessary to consider the setting up of a central organisation to control the supply of certain classes of armament stores and their means of production. In such circumstances, in the case of stores of a fairly standardised pattern, which are produced in large quantities by many manufacturing units, there may be a preponderance of advantages in centralised control and mass production.

9. But the considerations which, in special circumstances, may apply to certain mass-production stores of a common type do not apply and, so far as can be seen, never will apply to a large range of vitally important armaments, even though the means and sources of production may have to be controlled. As has been explained, it is a matter of the first importance to keep in continuous touch the technical and engineering resources of the country on the one hand, and the day-to-day experience and knowledge of war requirements possessed by the Services on the other. To interpose an independent authority with no knowledge of either would constitute a serious and probably crippling handicap to the defence services both in peace and war. This is especially so at a time like the present when technical advance is revolutionising the conduct of war, and when national security depends more than ever upon keeping abreast of the times.

10. The scheme really amounts to a stage in the internationalisation of the supply and control of armaments, and the failure hitherto to achieve even a modest measure of international control of the traffic in arms does not augur well for its practicability. It may well be asked what reason there is to suppose that the establishment of Armament Boards in different countries would eliminate competition between them, not merely for orders which another country wishes to place abroad, but for the political influence which would flow from such inter-government supplies. The proper correlation of national and international orders would offer countless difficulties and the Board would tend to become preoccupied with such problems to the prejudice of national defence.

11. The essential needs of national defence seem, in the proposal, to have been entirely subordinated to a desire to eliminate evils, the existence of which in the present system appears to have been as little established as has the prospect of immunity, under the suggested scheme, from evils perhaps graver than those now alleged to obtain.

4519. *Chairman*: This memorandum does not appear to be open to an objection that it is not up-to-date, because it refers only to the evidence of the League of Nations Union, which was given before this memorandum was prepared.

Sir Hugh Elles: That is correct.

Chairman: I have no question to ask. I do not know whether anyone wishes to ask a question on this?

4520. *Sir Thomas Allen*: Do you see the utility of such a board, given proper safeguards and provision for the three services to be adequately represented? I see one of your strong objections is that there is practically no place for the services, although in paragraph 1 (b) it says, "composed largely, it is suggested, of persons having no connection with the three services." I remember putting a question up to Lord Cecil on that very point, and his answer was that he thought it was proper that representatives of the services should be on this board but they would be there more in an advisory capacity, I take it something in the way that they will be now under the co-ordinating minister; they will put up their case and it will

be considered on its merits. Do you see any modification, say, where such a board would be very serviceable and desirable on the lines of the Ministry of Munitions?

Sir Hugh Elles: No, Sir. Of course, the question of the Ministry of Munitions is a very difficult one. I can see no advantage in a board of this kind. The great objection always has been the interposition of a body between the user and the supplier. That is our point, and if that can be avoided we all think it should be avoided from the point of view of efficient supply of the right sort of armaments.

4521. *Mr. Spender*: But you say, do you not, that there is for all practical present purposes such a board now in existence—

Sir Hugh Elles: Oh, no.

4522. *Mr. Spender*:—only you regard it as an expert board, combining users and manufacturers.

Sir Hugh Elles: The board that exists is not an executive board such as this proposal mentions, which is an executive board actually placing contracts and taking over the contracts departments of the ministries.

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4523. *Mr. Spender*: You think an advisory board is sufficient?

Sir Hugh Elles: Yes.

4534. *Chairman*: You do not want this class of board at all?

Sir Hugh Elles: No, not at all.

4525. *Professor Gutteridge*: I do not know whether you have directed your attention to this little monograph by Colonel Carnegie called *The Arms Industry*?

Sir Hugh Elles: I have not seen it for a long time.

4526. *Secretary*: It is his latest production.

Sir Hugh Elles: No, I have not seen it.

4527. *Professor Gutteridge*: That has not been considered by you?

Sir Hugh Elles: No.

Professor Gutteridge: Because I am rather inclined to think that he somewhat modifies his scheme in that. It is very complicated.

4528. *Sir Philip Gibbs*: Is not your opinion rather directed to peace conditions than to the expansion which would be immediately necessary in the case of a great war, and in that case is not an executive board immediately essential?

Sir Hugh Elles: I do not think necessarily. I really cannot see what function this board is going to perform.

4529. *Sir Philip Gibbs*: Is not there a great difficulty about the allocation of orders between the services, for instance, in a time of rapid expansion?

Sir Hugh Elles: We hope there will not be, and that is what the central co-ordinating committee in for—to allocate the resources to demand between the three services. That is its principal function.

4530. *Dame Rachel Crowdy*: There was in fact great difficulty about the allocation of orders in the last war, was there not?

Sir Hugh Elles: Yes, in fact there was. There were a number of bottle-necks which were not foreseen. There was no such committee.

Sir Reginald Townsend: Nor had the preparatory work been done that has been done now.

4531. *Sir Thomas Allen*: Following up the points submitted by Sir Philip, I notice that on 15th May of last year Lord Mottistone, who was at one time, as Colonel Seely, Secretary for War, said in the course of his speech that as Secretary for War he had found defence distracted by departmental friction, and that rearmament should be carried out on a properly organised and therefore commercial basis. Now I take it that was in the mind of Lord Cecil and his Committee when they conceived the idea of this armaments board. Do you see anything in what Lord Mottistone said at all?

Sir Hugh Elles: Lord Mottistone's experience is between 20 and 24 years old.

4532. *Sir Thomas Allen*: And would not apply to to-day?

Sir Hugh Elles: No.

4533. *Sir Thomas Allen*: There is only one other question on this memorandum that I want to ask. It is paragraph 11, I think, where you say the evils of the present system "appear to have been as little established as has the prospect of immunity, under the suggested scheme, from evils perhaps graver than those now alleged to obtain." When you speak of the evils not being established, are you speaking in respect to the evidence that we have received as a Commission or are they out of your own experience?

Sir Hugh Elles: Oh, no, out of the allegations made before this Commission.

4534. *Sir Thomas Allen*: Your view is that they have not been established?

Sir Hugh Elles: Well, Sir, they are *sub judice*, are they not?

4535. *Chairman*: I think we ought to bring this back to the right perspective because you are only dealing now with a board which it was suggested should be set up in peace-time. That was the proposal of the League of Nations Union, that a board

was to be set up in peace-time. Sir Philip asked you about the case of war. Of course, that is quite different; but this proposed board was to be set up in peace-time. That is so, is it not, and you are dealing with it on that footing?

Sir Philip Gibbs: Yes.

Chairman: You see it is quite plain, because under paragraph 1 (d) this particular board they suggest is to be charged with the duty of acting as agents for the similar boards set up in other countries, which, of course, is a peace-time operation if it could be carried out at all.

4536. *Sir Philip Gibbs*: Might I ask you whether you think that the Ministry of Munitions was necessary and efficient during the Great War? That is a rather general question.

Sir Hugh Elles: It is a difficult question to answer. It was in the circumstances at the time necessary, apparently. I had nothing to do with it. It appears from what I have read to have been definitely necessary.

4537. *Sir Philip Gibbs*: What I wanted to ask you was, if the Ministry of Munitions was necessary in the Great War and if it was efficient, do not you think that it is arguable that it would be a good thing to set up a similar body in time of peace which would then immediately function in case of war?

Sir Hugh Elles: It has been argued a great deal.

4538. *Sir Philip Gibbs*: It is, I grant, a very theoretical question. Might I ask you one other question which is also rather general? Do not you think with regard to paragraph 10, in which you talk about the traffic in arms—do not you think from the service point of view that the government ought to have a closer control over the sale of weapons of war by private industry?

Sir Hugh Elles: There is a very strong licensing system.

Mr. Bovenchen: I should say the government already had a very strong control.

4539. *Sir Philip Gibbs*: They have a strong licensing system?

Mr. Bovenchen: Yes.

4540. *Sir Philip Gibbs*: But that licensing system does not seem to prevent a very great sale of weapons of war abroad, and I was wondering whether you think from a service point of view that that sale of our latest types of weapons has any repercussions on your duties?

Sir Reginald Townsend: I hope there is no sale of the most recent types of weapons if there is any question of secrecy. In fact we are sure there is not.

4541. *Sir Philip Gibbs*: Well, there is a certain amount of evidence that immediately prior to the Great War our most modern types of weapons were being sold to other countries.

Sir Reginald Townsend: That is a great many years ago.

4542. *Sir Philip Gibbs*: Yes. I think also there is a certain amount of evidence before this Commission that our most recent discoveries in such things as armour-piercing shells are available to foreign countries.

Sir Reginald Henderson: I suppose you are really referring to Hadfield's shell that was discussed. There was no secret patent taken out for Hadfield's relieved adaptor. It was decided by the Board of Admiralty in 1930 that although this was an advance in shell it was not such an advance that it was possibly a year's time other nations would not be able to find it out for themselves, and that was the reason why we came to the conclusion that there was no necessity to take out a secret patent. I say undoubtedly it was a better shell but it was not a thing that could be kept secret for ever. The Board of Admiralty studied it very considerably and said, "Well, this is not fit to take out a secret patent for and we do not want to pay for it if we can avoid it," and it was really a

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question of finance with the chance that this shall would normally be discovered by any other country. 4543. *Chairman*: But that was not any fault of the licensing system; that was done deliberately?

Sir Reginald Henderson: Done deliberately.

4544. *Chairman*: And done after consideration?

Sir Reginald Henderson: After consideration.

4545. *Professor Guttridge*: It would have been done if the industry had been nationalised, I take it? It might have happened if the industry had been nationalised?

Sir Reginald Henderson: I suppose if the industry was nationalised and came under government control there would be no question of a secret patent then, because it would be your own.

4546. *Chairman*: I think what the Professor means is that it would have gone out of the country in just the same way if the manufacture had been nationalised?

Sir Reginald Henderson: If the service department allowed it to go out, Sir.

4547. *Chairman*: They would have allowed it in the same way as they did in fact in this case?

Sir Reginald Henderson: Yes, I should think they would.

4548. *Sir Philip Gibbs*: Might I ask if the service departments have any objection to our modern types of weapons being sold freely abroad?

Sir Reginald Henderson: I think the case is this, that they are not sold freely abroad. If any arm or weapon goes out of this country it has first been through the licensing procedure and it has passed through the technical heads of one of the ministries as to whether they will allow it to go.

For instance, if any country you like, say, Ecuador, wants to buy something, we will say from any particular firm in this country, that firm will come to the department; if it happens to be the Admiralty he will come and see me, and I say, "No, that is not to go."

4549. *Sir Philip Gibbs*: Are there many types of weapons upon which you do place a restriction?

Sir Reginald Henderson: Oh, yes.

4550. *Mr. Spender*: If you constitute it a secret patent then you buy it for the government?

Sir Reginald Henderson: Yes, that is so.

4551. *Mr. Spender*: But if you do not treat it as a secret patent you still under licence can prevent its going abroad?

Sir Reginald Henderson: Yes, we could certainly prevent it going abroad, but I would much rather prevent it being built by the country abroad.

4552. *Chairman*: You could not prevent that by licence?

Sir Reginald Henderson: No, I think a firm could go and set up an establishment in Belgium to build for them. I could not stop them doing that.

4553. *Mr. Spender*: You mean a British firm could do that?

Sir Reginald Henderson: Yes.

4554. *Mr. Spender*: That is a point which has been brought home to us on several occasions, that there is this point of leakage, that there is nothing in the present machinery which can prevent a firm going abroad, setting up a factory and escaping our network of licences.

Sir Reginald Henderson: Exactly. There is, of course, the Official Secrets Act.

4555. *Mr. Spender*: But can you apply the Official Secrets Act to a firm operating abroad?

Sir Reginald Henderson: If we say this is a secret thing the firm do not manufacture it abroad. If we say we do not mind about it they can do it.

4556. *Mr. Spender*: That brings us back to this point, that you have got to treat it as a secret patent and pay for it?

Sir Reginald Henderson: No, not necessarily pay for it.

4557. *Mr. Spender*: You can do it without paying for it?

Professor Guttridge: You can stop it without payment?

Sir Reginald Henderson: Yes.

4558. *Professor Guttridge*: Might I ask you one other question? It has been suggested to us by at least one witness who came before us that any military or naval secret becomes more or less public property after two years. Do you agree?

Sir Reginald Henderson: I do not know. I candidly do not know.

4559. *Professor Guttridge*: Anyhow, do you agree that you cannot keep a military or a naval secret indefinitely?

Sir Reginald Henderson: No, I would not say that; oh, no.

4560. *Sir Thomas Allen*: But secret or otherwise, are you at any advantage by export of armaments, or do the disadvantages outweigh the advantages, speaking generally?

Sir Reginald Henderson: Individually, as a department?

4561. *Sir Thomas Allen*: No, I mean from the point of view of the three services is the system helpful to you or is it disadvantageous?

Sir Reginald Henderson: Oh, it is definitely helpful to the extent that naturally the firms are using their own brains to improve things, but it does not help us from any other point of view, other than keeping labour, and so on, going.

4562. *Sir Thomas Allen*: I am speaking now from the point of view of defence and the services generally. Is it a disadvantage to the services to have an export system of armaments?

Sir Reginald Henderson: Oh, no, it is an advantage, a definite advantage.

4563. *Sir Thomas Allen*: Would you define in what sense it is an advantage?

Chairman: The evidence before us is that it is essential. It may be right or it may be wrong, but that is what is said.

Sir Reginald Henderson: Well, I say it is essential.

4564. *Sir Philip Gibbs*: Why?

Sir Thomas Allen: How does it help you at all?

Sir Walter Jenkins: Well, for one thing it helps our own manufacturers.

4565. *Sir Thomas Allen*: I am not speaking of our own manufacturers. I am speaking of the services. I quite appreciate that from the point of view of a British manufacturer, the more trade he can do the better for his firm. I am speaking now distinctly from the point of view of the services, the advantages or disadvantages to the services of an export system at all.

Chairman: When you speak of the services you mean national defence?

Sir Thomas Allen: Yes, the three services represented here to-day. Take, for example, the present position in respect to aeroplanes and the answer given in the House of Commons some time ago about the increase in the export of aero-engines and aeroplanes. As far as my memory goes, the answer was that we are supplying 29 different nations with aeroplanes. What advantage can that be, say?

Sir Hugh Dowding: Perhaps I had better answer that. I would like to say that in this respect you cannot divorce the interests of the service from that of the manufacturers. The service and the manufacturers are one organisation for providing material in the case of war, and if, for instance, the export of aeroplanes was completely banned our resources, our facilities for producing aeroplanes, would be by that extent reduced; and it is a very great asset—quite apart from questions of prestige, and so on, it is a very great practical asset to the service—to have a large and healthy aircraft industry.

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4566. *Sir Thomas Allen*: But that large industry does supply facilities for other nationalities also?

Sir Hugh Dowding: Certainly, but those facilities could be pinched off in a moment in the case of war whereas they are our potential war reserve.

4567. *Sir Philip Gibbs*: But if you are increasing the number of aircraft possessed by a nation which might be a potential enemy you have an immediate necessity of increasing your aircraft supplies in this country, and consequently you get an ever-increasing scale necessary. Do you think that is good?

Sir Hugh Dowding: I do not think that is quite a fair argument, because if a foreign country requires, or thinks it requires, an air force of a certain size, we will say 200 or 300 aeroplanes, or whatever it may be, their first desire would be to make them for themselves if they could, probably. Assuming that it is a country which is backward in manufacturing facilities, they find that it is necessary to buy them somewhere else. They will get them from some source or another. They will have their 500 aeroplanes, or whatever it may be.

4568. *Sir Philip Gibbs*: But they will not have our best types?

Sir Hugh Dowding: No, they will have somebody else's types, but they will have 500 aeroplanes, and whatever effect that has on the air forces of other nations will be the same.

4569. *Sir Philip Gibbs*: It does lead, I should imagine, to an increasing scale of more efficient weapons continually becoming—

Sir Hugh Dowding: Do you mean that they perhaps can get something more efficient from us than they could get from any other country? Is that the point?

4570. *Sir Philip Gibbs*: Yes; at any rate, we are making them a present of our brains.

Sir Hugh Dowding: No, we are not making them a present of our brains. We are selling them our brains.

4571. *Sir Philip Gibbs*: Yes; but the cost of sale might be very severe if they used our brains against us.

Sir Hugh Dowding: If we can isolate the question down to that, whether the fact that by buying from this country they will get something so superior to anything they could get from another country, which is your point, I take it—

4572. *Sir Philip Gibbs*: Yes.

Sir Hugh Dowding:—I do not think that the difference there—I mean, I like to think and say that we make and supply the best material in the world, though it is not everybody, perhaps, who would agree with me there; but assuming that there is a marked superiority in our goods—I do not think that is anything to set off against the very great advantage which we obtain by having a large and healthy aircraft industry ready for the enormous increase in requirements which would be necessary at the outbreak of a war.

4573. *Dame Rachel Groudy*: You mean from the point of view of keeping plant and technical labour going?

Sir Hugh Dowding: Yes, skilled labour and tools.

4574. *Professor Gutteridge*: We have been told, I think, that as a matter of fact they do not get our very latest designs until a certain period has elapsed.

Sir Hugh Dowding: Well, we have rather a different system. Would you like me to speak about our arrangements?

4575. *Professor Gutteridge*: Yes, I would like you to explain your system.

Sir Hugh Dowding: Well, every new aeroplane and every new engine goes on to what is called a "secret" list. That secret list is not published anywhere outside the Air Ministry, and the manufacturers know that they are not permitted to disclose any details of that aeroplane or engine

or even its existence in its early stages; any request for sale abroad or export would be unhesitatingly refused at that stage. Then there comes a stage in the life of an aeroplane where it is impossible to keep its existence secret any longer.

4576. *Professor Gutteridge*: You agree with what I was saying just now, that at all events there are certain things which you cannot keep secret for more than a certain time?

Sir Hugh Dowding: For more than a certain time. You cannot keep secret the existence of a new type of aeroplane because it is out on aerodromes and flying in the air, and everybody can see it. It is no good pretending that that aeroplane does not exist.

4577. *Professor Gutteridge*: It is a *secret de polichinelle*, as they say.

Sir Hugh Dowding: Yes. At that stage as regards an aeroplane, at the time when it comes out of its shed and first flies, it is put into a somewhat different category; it comes under the "publication" list, whereby the full details are not to be disclosed—

4578. *Professor Gutteridge*: May I intervene for a moment? What I want to know is this: can the aeroplane be sold at that stage?

Sir Hugh Dowding: No aeroplane can be sold at any time without permission of the Air Ministry.

4579. *Professor Gutteridge*: I did not quite mean that. You have got to the second stage now. I am not quite clear about this. Is the sale of an aeroplane permitted in this second stage which you are coming to or not, because I am only interested when it comes to be a question of sending our aeroplanes abroad.

Sir Hugh Dowding: I was going to explain. At that stage the manufacturers are allowed to disclose the existence of such a machine and to give a general description, but not performance figures or anything of that sort, and they are allowed to discuss the sales with *bona fide* purchasers, and then if they think they have got a *bona fide* purchaser they come to the Air Ministry and ask if they may sell such and such a type abroad. Then the matter is referred not only to the technical people but to the Air Staff and permits may be given or withheld, but the general principle which is followed is that the service shall have something over a year's lead over other people.

4580. *Professor Gutteridge*: May I ask you a question on that? When you are considering these questions of sales to other countries, do you bear in mind the possibility that that country might sell back again to some other country? I mean, what I have always had in mind about this is, that it might be quite obvious that to sell aeroplanes to Bolivia could not hurt us very much because, of course, the Bolivians could not attack us right across South America and the Atlantic; but one wonders whether there is not a certain danger that some of these states might purchase these aeroplanes and then sell them to some country which could use them effectively against us.

Sir Hugh Dowding: Well, that question of course has arisen during recent years when there were certain countries to whom we were not permitted to sell warlike stores of any sort; and the Director of Contracts will give further details if necessary, but we have provisions to prevent re-sale and re-export.

4581. *Professor Gutteridge*: But I do not see how you can do that. How can you stop this, for instance? Supposing Ruritania—I do not want to name any particular country—buys so many aeroplanes from one of our manufacturers and then sells them to Utopia, Utopia being a country which is just across the channel and can easily bomb us, how can you stop that?

Sir Hugh Dowding: Well, actually we have stopped that. I do not want to particularise too much either, because it is invidious; but there was a consignment of aeroplanes which were being bought

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by one country and it came to our notice that they would very probably be exported to another, and we stopped them altogether.

4582. *Professor Gutteridge*: I can understand you stopping it if you are suspicious, but of course if you are not suspicious there is no way of stopping it, is there?

Sir Hugh Dowding: No. We have, in certain cases, obtained an undertaking not to resell, but, of course, words can be broken.

4583. *Professor Gutteridge*: International undertakings are not always kept, unfortunately.

Sir Hugh Dowding: I do not know of an instance where any of our aeroplanes has found its way to an undesirable destination.

4584. *Professor Gutteridge*: You would get to know, if that happened.

Sir Hugh Dowding: Yes.

4585. *Professor Gutteridge*: And the result would probably be that you would put an embargo on sales to that particular country afterwards.

Sir Hugh Dowding: Yes.

4586. *Dame Rachel Crowdy*: Would you see any objection to any form of regulation which would render it illegal to export aeroplanes to a country, unless it gave an undertaking not to re-export?

Sir Hugh Dowding: It is always possible to do that and it has been done.

4587. *Dame Rachel Crowdy*: I mean a general regulation. Would you see any objection to that being universally applied, as far as you are concerned?

Sir Hugh Dowding: No. I would say that was rather a political matter. I should think, in most instances, we should not be particularly anxious to include such a reservation, but it would be quite possible to do so.

4588. *Dame Rachel Crowdy*: You would not be against it?

Sir Hugh Dowding: No. I have not really considered the matter. The object being what?

4589. *Dame Rachel Crowdy*: The object of it being rather to prevent what Professor Gutteridge has been speaking of, the re-export of something on which, perhaps, we had an embargo. I am thinking of a particular case where, in the Far East, I came across war materials which had reached the Far East through the United States and which had emanated from here. At that moment it was probably not particularly wise to export our material to Japan in view of the fact that Japan had just been announced as an aggressor internationally in Geneva.

Sir Hugh Dowding: Speaking without any very deep consideration, I would see no objection to that at all, particularly if at any time there were any country in the world which was on our ban list.

4590. *Dame Rachel Crowdy*: It might be a help, in moderation.

Sir Hugh Dowding: Yes.

4591. *Professor Gutteridge*: I suppose, looking at it purely from a national defence point of view, you place considerable reliance on the fact that our Air Force would have anything from a year to two years' start with the design before it got into the hands of another country.

Sir Hugh Dowding: Yes. Any new design is only an ephemeral advantage as we immediately produce something better ourselves.

4592. *Professor Gutteridge*: I was wondering whether it was possible for a foreign country to buy an aeroplane in this country simply as a model. That has been done?

Sir Hugh Dowding: Yes.

4593. *Professor Gutteridge*: Your answer would be that if they do that they have something which is not as good as we have.

Sir Hugh Dowding: As a rule, if you try to make a Chinese copy of an aeroplane, you get into trouble.

4594. *Professor Gutteridge*: I was not thinking of a backward country. Such a country as Soviet Russia might do it.

Sir Hugh Dowding: Soviet Russia has tried to do it.

4595. *Sir Thomas Allen*: What it amounts to under the present system is that other countries get what we consider to be the second best.

Sir Hugh Dowding: Yes, and we are glad to let them have it.

4596. *Sir Thomas Allen*: From one point of view, it may be the best. It is just a matter of selection, is it?

Sir Hugh Dowding: You mean in some particular feature it might be the best?

4597. *Sir Thomas Allen*: You have, say, 15 or 20 firms on your list. They put up their designs and you make a selection. Then all the other 14 or 19 may be free to sell, although they have been turned down.

Sir Hugh Dowding: For one thing, the other firms will be building something else, some other type. Just because we have declined a design, it does not follow that that is automatically available for export. The same regulations hold with regard to that. They still have to obtain our permission to export, even if it is not a type that we are buying ourselves.

4598. *Sir Thomas Allen*: But in practice, what is the result?

Sir Hugh Dowding: In practice, we should be very reluctant to put an embargo on a type which we were not ourselves using.

4599. *Professor Gutteridge*: May I ask you this question? Are you one of the people who decide whether a plane shall be exported or not, as an individual?

Sir Hugh Dowding: I was.

4600. *Professor Gutteridge*: That will answer my purpose. When you approached this question of export—I am putting this to you as an individual—did you approach it simply and solely from the point of view of the desirability of maintenance of secrets of national defence and prevention of abuses and so on, or did you rather approach it from the point of view of letting the aeroplane manufacturer export unless there were reasons for his not doing so? As the lawyers would say, which way does the onus lie?

Sir Hugh Dowding: As far as I was concerned with the technical side, my inclination was always to say yes—my personal inclination.

4601. *Professor Gutteridge*: Why?

Sir Hugh Dowding: From the technical point of view, for the health of the industry and the maintenance of facilities in case of war, but I never made any decision without consulting the Air Staff, whose natural inclination was to say no.

4602. *Professor Gutteridge*: And did you consult departments like the Foreign Office or the Board of Trade, or any other department?

Sir Hugh Dowding: Yes; wherever applicable, we are in constant touch with the Board of Trade over these matters.

4603. *Professor Gutteridge*: Should I be unfair if I said that the tendency was generally to allow export?

Sir Hugh Dowding: As far as I am concerned, certainly, yes.

4604. *Professor Gutteridge*: I mean generally.

Sir Hugh Dowding: Often the views of the Air Staff prevailed, and export which I should have liked to agree to was refused.

4605. *Chairman*: The licence would have gone automatically, as far as you were concerned, unless there was some objection raised from outside by the Foreign Office. If you had been left to yourself and there were no other consideration, except the welfare of the manufacturer and the desire to keep the particular works in working condition, the licence would have gone, I suppose. It was somebody else's business to consider whether it was in the public interest or whether there was any political objection.

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Sir Hugh Dowding: It often happens that some political question is involved and in those cases we would invariably consult the Foreign Office, and I think I am right in saying that, in every transaction of this sort, the Board of Trade know about it and in any particular case we would specifically consult the Foreign Office. We are in touch with the other departments concerned in all these matters.

4606. *Sir Thomas Allen:* The sum total of your conclusions is that we must go on and on producing as rapidly as possible, getting all the orders we can, in view of eventualities and the necessity of having this country ready for emergency. Is that what it amounts to?

Sir Hugh Dowding: I say that it is extremely desirable to maintain an appreciable export trade, a large export trade.

4607. *Sir Thomas Allen:* That is a fair answer to my question.

Sir Hugh Dowding: Yes, except that you said essential.

Mr. Bovenchen: May I say a word with regard to the question that Dame Rachel addressed to the representative of the Air Ministry on the question of whether there was any objection to making it a condition for manufacturers who exported that they would only export to countries which gave an undertaking that they would not re-export. I should like to make one point on that. I do not say that it is accepted, but if it is accepted that it is desirable to encourage our trade, quite obviously any restrictions of that kind which are not imposed simultaneously by other countries will definitely damage the prospect of our manufacturers, from a selling point of view. I think the question was asked and answered without previous consideration and I should like to get that on the notes.

Sir Hugh Dowding: Yes. That is quite a good point. It had not occurred to me. I agree with what Mr. Bovenchen has said.

4608. *Chairman:* As I understand it, the aeroplane manufacturers are now really so dependent

upon the government for their orders and their business that it is in their interest to work with the ministry and carry out all the ministry's requirements.

Sir Hugh Dowding: Yes, very much so. They could not afford to go against our wishes, even if we have not the absolute legal right to give them orders.

Sir Walter Jenkins: May I reply to a question that Sir Thomas Allen asked with regard to the advantage to the defence services of allowing exportation? Take warship building. As you know, ever since the armistice our shipbuilding and warship building firms have been suffering from a great lack of orders and it is certainly to the advantage of the Admiralty that they should, in competition with other countries building warships, get orders for supplying the smaller powers, and it is definitely to the advantage of the Admiralty that they should have work to supplement any work that we are able to give them. It keeps their skilled men employed, and it helps them to reduce their charges. I think it would be a very great handicap to manufacturers in this country if they were prohibited from exporting their products and the smaller powers were able to go to firms in other countries.

4609. *Chairman:* I think this particular point arises on Memorandum VI,* where you deal with contract procedure.

Sir Walter Jenkins: Yes.

4610. *Chairman:* In Memorandum VI you show what is the Admiralty policy—to encourage firms to obtain orders.

Sir Walter Jenkins: Yes.

Chairman: We shall come to that memorandum in course of time.

Sir Philip Gibbs: Might I ask a question when we come to it?

Chairman: Yes. We had now better get on with Memorandum III.

* See p. 673.

The following memorandum was read:

III. PROPOSALS FOR PARTIAL NATIONALISATION OF ARMAMENTS INDUSTRY

JOINT MEMORANDUM BY THE ADMIRALTY, THE WAR OFFICE AND THE AIR MINISTRY, IN CONSULTATION WITH THE BOARD OF TRADE.

1. The joint memorandum of the Danish, French, Polish and Spanish delegates to the Disarmament Conference (Conf. D/C/G/43, 3rd March, 1933, quoted in paragraph 3 of written evidence tendered on behalf of the League of Nations Union, page 29, column 1 of evidence) contains the following passage:—

"The abolition of arms manufacture is not designed to concentrate in the hands of the State all manufacture that might serve to produce arms. The sole object is to reserve to the State that part of industrial production whereby a product undergoes the first transformation which renders it unfit for pacific purposes and destined it exclusively for military use."

2. Evidence in support of a partial nationalisation of the armaments industry, based on the above proposal, has been given before the Royal Commission, on behalf of the League of Nations Union and by other witnesses.

3. In the first place it must be emphasised that the proposal for partial nationalisation is open to the same objections on account of loss of "war potential" as proposals covering a wider field, since by definition it would involve the nationalisation of the processes which are peculiar to arms manufacture. It is submitted that it is necessary to maintain in peace as widespread a knowledge as possible of these processes in order to prepare the

way for a rapid expansion in war. Admittedly under conditions of modern warfare any expansion must be rapid and if industry generally is not to be allowed to acquire the necessary technical knowledge in peace time the only and probably less efficient alternative is the creation of large reserves of state manufacturing capacity at a huge capital cost and a substantial maintenance charge.

4. Apart from this overriding consideration there are certain practical difficulties, both technical and economic, in any policy of partial nationalisation which were not referred to by the parties giving evidence before the Commission. On the technical side, the difficulty at once arises of the definition of the stage in production where it is proposed that private manufacture shall cease and nationalisation commence. The point where the first transformation occurs which renders an article "unfit for pacific purposes and destined it exclusively for military use" is an extremely difficult one to determine. There are no doubt some products in which it is possible technically to indicate such a stage, e.g. in the manufacture of cartridge cases the line might conveniently be drawn at the strip brass. But it is even more easy to point to examples where it would be impracticable to delimit the processes.

5. The difficulty of definition, for example, is especially marked in regard to aircraft. Where it happens that an aircraft can be used both for civil and military purposes, e.g. the De Havilland

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"Dragon", the stages of manufacture are the same to the extent of about 85 per cent., that is to say, until it is almost completed, it may be intended to be either a military or a civil machine. The design does not necessarily indicate the use to which the aircraft is to be put. The bomber and the civil transport aircraft have alike to be built for speed and load capacity. The detailed processes of manufacture, too, are largely the same in both cases and it would usually be impossible to say that a particular factory process relates to a civil or a military aircraft. Aero engines, moreover, can definitely be put either to civil or to military uses, and so can many aeronautical instruments and accessories. In fact where a manufacturer produces a civil and a military version of the same type 80 or 90 per cent. of the components may be identical in either version. Only when such clearly warlike accessories as gun mountings or bomb racks are installed could it be affirmed with certainty in many cases that the aircraft was intended for war. But when the aircraft reaches that stage the process of the manufacture of the aircraft itself has really been completed. During manufacture there is no stage at which the final process of turning the aircraft into an armament can be said to begin, at all events in any but exceptional cases. Partial nationalisation in the case of this armament would therefore seem to be impracticable.

5. The aircraft case is perhaps an extreme one, but the difficulty in drawing a line in other sections of the armaments industry is just as real. Where, for example, a special steel has been developed for military use it is very likely that ultimately industrial uses for the steel will also be developed. At what point, therefore, does the new steel pass the dividing line? Is it to be regarded as unfit for pacific purposes as soon as it is alloyed, merely because no peaceful use has yet been found for that particular alloy, or is it to be regarded as having crossed the dividing line when it is first forged into a shape suitable only for warlike use? The industrial demands for large steel forgings of special character (e.g., for the hydrogenation of coal) is growing so rapidly that in practice even a dividing line based on specialised types of forging would be difficult to determine. Conversely, what action is to be taken when a military use is discovered for a product primarily intended, and perhaps hitherto exclusively employed, for civil purposes?

7. Turning now to the economic side, it must be recognised that in the iron and steel, heavy engineering and chemical industries—all of which are concerned in one form or another with armaments—the process of rationalisation has led to the formation of large units based on "vertical" combination, i.e., bringing under one control the whole process of manufacture from raw material to finished article. Although it is true that in many cases armament production represents only a small proportion of the total output of the industries concerned it represents

an integral part of the whole output. It is not reasonable to suppose that a policy of introducing a purely arbitrary dividing line in the processes of manufacture, on the one side of which nationalisation would be introduced and on the other private manufacture maintained, would be anything other than a setback to efficient production. Little of the plant employed is of the specialised type, at least until the final stages of the product, but is used as occasion requires both for commercial products and for armaments. It could not be taken over by the government without destroying the balance of the entire plant, and if its use for armament purposes is to be denied there might be serious dislocation of production generally as well as financial difficulties. Moreover, in so far as a certain proportion of the work was undertaken by the government itself, there would be considerable duplication of plant and consequently much less and waste from the national point of view.

8. This memorandum is directed primarily to the suggestion that only the finishing stages of armament manufacture, when the product has assumed a specialised character, should be nationalised. It must not, however, be assumed that grave difficulties would not also attend proposals to take over, not merely the finishing processes, but the whole of certain selected units as "going concerns." The fact is that armaments manufacture is so closely intertwined with the general engineering, shipbuilding, and chemical industries that the attempt to separate it from them, on whatever basis it might be made, would inevitably entail duplication and inefficient employment of much of the plant, besides being open to the other objections to abolition of private manufacture set out in Sir Maurice Hankey's evidence.

9. A good illustration of the type of difficulty which besets proposals to take over selected units as going concerns is furnished by the case of the shipbuilding industry, which is considered in greater detail in the Admiralty Memorandum dealing with the Cost of Nationalisation.*

10. In the view of the defence departments, therefore, the proposal for partial nationalisation is open to objection on the grounds—

(a) that like other and more far-reaching schemes of nationalisation it would seriously reduce the "war potential" of industry;

(b) that it is of very doubtful practicability on technical grounds;

(c) that it would cause considerable dislocation of existing commercial establishments and materially affect the efficient production of ordinary commercial goods; and

(d) that if partial monopoly is alternatively construed as the nationalisation of selected existing industrial units very serious difficulties would again be encountered.

* See p. 660.

4611. Dame Rachel Crowdy: In paragraph 5: You say "During manufacture there is no stage at which the final process of turning the aircraft into an armament can be said to begin, at all events, in any but exceptional cases." There you are really talking of bombing machines, are you not? You are not talking of the fighting plane, which, I gather, starts at a much earlier stage than the civil plane.

Sir Hugh Dowding: Yes, that is true.

4612. Dame Rachel Crowdy: A fighting plane begins much younger.

Sir Hugh Dowding: A single seater fighter is probably distinctive from its earliest stages.

4613. Sir Thomas Allen: I would like to put one question on that. Your difficulty in this paragraph seems to be the problem of definition with

regard to armaments. If I remember rightly, there was no definition of armaments at all in the Ministry of Munitions Act of 1915—it was only in general terms. Would not that meet the case where you are troubled about definitions—a system such as is suggested here?

Sir Walter Jenkins: I think the Royal Commission have been working on a definition which was drawn up for the Export Prohibition Order. I have a copy of that here.

4614. Professor Gutteridge: Is that the one scheduled to the Order of 1931?

Sir Walter Jenkins: Yes.

4615. Secretary: The Commission have used that definition for a particular purpose. They have not in any way adopted it.

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[Continued.]

Sir Walter Jenkins: There are certainly, in my recollection, in that list units that would come under this category that I have named. It would be very difficult to decide where what you might call the commercial process started and where what you might call the war process of manufacture began.

4616. *Sir Thomas Allen:* My point is, why should definitions trouble you? As experience developed, you would be able to define properly.

Sir Walter Jenkins: I dare say you could apply it to some cases—for instance, cartridge cases—but when you came to explosives, explosives cover a very, very wide field.

4617. *Sir Philip Gibbs:* Could you not deal with the cases when they actually became lethal? There is a point where a weapon is ready to go off and a point where it is not ready to go off. The lists which have been drawn up for the League of Nations in Geneva have taken the point where the article is actually a weapon ready for use.

Sir Walter Jenkins: I should regard a mine, which is certainly lethal, as a weapon of defence.

4618. *Sir Philip Gibbs:* I think I should regard it as a lethal weapon.

Sir Walter Jenkins: Certainly, but the greater proportion of the component parts of sea mines is made by commercial firms.

4619. *Sir Philip Gibbs:* But I think they ought to be under the control of government.

Sir Walter Jenkins: Then you would have to control a large range of manufacture.

4620. *Mr. Spender:* No one makes lethal mines except to government order, do they?

Sir Walter Jenkins: No.

4621. *Mr. Spender:* Therefore, to that extent they are under a certain amount of government control. There is no manufacture of mines other than for the government?

Sir Walter Jenkins: Either for the government or for export.

4622. *Mr. Spender:* If they were made for export they would come under the licence.

Sir Walter Jenkins: Certainly.

4623. *Chairman:* Now shall we go on with No. IV?

The following memorandum was read.

IV. COST OF NATIONALISATION.

A. MEMORANDUM BY THE ADMIRALTY.*

1. The first step in the consideration of this problem is to adopt a definition of armaments. Such a definition is of necessity arbitrary; but the most reasonable seems to be to define naval armaments as including:—

(a) Warships, including main propelling machinery and armour, and

(b) Armament stores, including all naval weapons, ammunition, etc., which would come within the scope of the definitions appended to the Arms Export Prohibition Order, 1931.

The nationalisation of the industry employed in the manufacture of armament stores generally has been examined in a separate War Office memorandum. The problem in relation to naval armament stores and weapons differs from that confronting the War Office, in that there are at present no facilities in the Royal Ordnance Factories or any other government establishments for the construction of heavy non-transferable naval gun mountings, or for the manufacture of large naval gun forgings, or heavy hardened shell, high explosives, and certain special naval requirements such as mines, paravanes, and depth charges. As regards these requirements, therefore, it would not be possible to rely on existing state facilities in peace, and a very large capital expenditure would be involved in providing special plant, especially that required for the manufacture of heavy non-transferable mountings. Difficulty would also arise from the fact that under the present system the design of these mountings is carried out by specially qualified technical staff employed by the armament firms concerned. Moreover without the skill and knowledge possessed by the manufacturers and their key men who are specialists in these products the standard of quality would be bound to suffer.

Apart from the peace-time problem, which differs to the extent explained above from that of the War Office, it would in the opinion of the Admiralty be quite impracticable to depend upon government monopoly for expansion in time of war; and this fact alone precludes reliance on government monopoly in peace.

2. The main purpose of this memorandum is, however, to consider (a), warships, main machinery and armour. This definition excludes an extremely large number of warship components, such as auxiliary machinery and the various scientific, electrical and optical instruments, as well as the structural and

other material used in shipbuilding. If, however, all the components of a ship were included, the problem to be considered would be, not the nationalisation of the warship building industry, but the nationalisation of a great part of the general industry of the country. This point is only mentioned because it must be realised that, if the object of nationalisation is to eliminate profit from the whole of the industry engaged, the restricted definition proposed means that the object is only partially achieved.

3. It is sometimes suggested that it would be an easy matter to take over as a valuation a sufficient number of private firms to carry out the normal peace time construction of the Royal Navy, and that as the interest on their capital is now included in the price of the ships, no additional cost to the state would be involved. A list of firms which would provide between them capacity to carry out any reasonable peace time programme of naval construction is appended to this memorandum (List A).† It would be possible to draw up different lists of firms suitable for the purpose, but this list, which has been prepared for purposes of illustration, would involve a minimum of interference with such important work as the construction of passenger liners.

4. In considering whether additional cost would be involved in taking over these or equivalent firms, it is necessary to recall that owing to the shortage of orders shipbuilders and armament firms have been carrying on, since the late war, under great difficulties; maintaining their facilities as long as possible without adequate assistance from the government, but living in the hope of receiving larger orders in course of time. Attempts to compensate for the lack of naval orders by turning to commercial work have not been very successful. In consequence of these conditions shipbuilders such as Messrs. Palmers and Messrs. Beardmore have dropped out. Sir W. G. Armstrong Whitworth, Ltd., made heavy losses and were forced to reconstruct, the armament side of their work being absorbed by Vickers. Other firms have been very hard pressed, as is shown by such examples as a firm being unable to make any allowance for depreciation and firms earning insufficient to pay a dividend, or more than a very moderate dividend, on ordinary capital. In some cases reconstruction has taken place involving even modification of the rights of debenture holders.

5. It is an obvious fallacy to argue that the interest on all the capital sunk in Messrs. Vickers-Armstrongs' Yard at Barrow is paid for by the

* Separate memoranda by the War Office and the Air Ministry are reproduced on pp. 662 and 666.

† Not printed.

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[Continued.]

Admiralty in the price of warships—part is paid for by the P. & O., the Orient Line, etc. Moreover, the naval work could not be completely segregated from the work on merchant ships, and for this reason the government could not take over Barrow, or any other similar establishment, unless they were prepared either to incur a substantial loss, or to enter upon the building of merchant ships as well as warships. Experience of undertaking such work in establishments intended primarily to supply the Services has not been very encouraging, even if the political prejudices which would be excited by state intervention in what has hitherto been a purely private industry are ignored.

6. The fact is that the suggestion that additional cost to the State would not be involved completely ignores the necessity of including in the List A a greater total shipbuilding capacity than would normally be absorbed by naval building programmes in time of peace. This necessity arises because there is an appreciable fluctuation even in peace time naval programmes, so that provision must be made for the largest programme reasonably to be anticipated; and also because, having regard to the structure of existing shipbuilding units, it is impossible to avoid including a certain proportion of unwanted capacity in order to get sufficient facilities in other directions.

7. But a more far-reaching objection than the additional cost involved in a scheme of nationalisation on the basis of List A springs from the fact that the problem of nationalising the warship building industry, like that of nationalising other portions of the armament industry, cannot be considered purely as a peace time problem. Armament work (and in particular naval shipbuilding and repairing) is of so specialised and exacting a character that it would be impossible to depend in war upon firms which had not had previous peace time experience. If private warship building is to be prohibited in peace it is therefore necessary to nationalise a sufficient capacity to provide, not only for normal peace time production, but also for the greatly enhanced requirements of the early stages of a major war—the requirements in fact up to the time when it will have been possible to train existing firms in naval work or to improvise new establishments. Even with the unlimited financial resources which would presumably be available in war, such a task would take a long time; probably a matter of years in the shipbuilding industry, where construction, and therefore training in all the stages of construction, inevitably takes much longer than in other types of armament work.

8. The Admiralty have therefore prepared a list of firms whose entire appropriate capacity is estimated to be necessary for the early stages of a major war, which is appended to this memorandum as List B.* This list, and not List A, is the real measure of the magnitude of the problem involved; and it will be seen that it is necessary to include the greater part of the British shipbuilding industry.

9. It must here be interpolated that, by permitting the Admiralty to exercise discretion in placing orders for training purposes with firms they would employ in time of war, it would be possible to avoid the necessity for so large a measure of nationalisation; but in this case private manufacture would by no means be abolished, since it would in fact be necessary to distribute the available orders amongst all the firms on List B. The normal peace time naval

building programmes are so small in relation to requirements in a major war that all the orders are really required for training purposes. It will be appreciated that the Admiralty could not accept any loss of efficiency or quality in a ship, and it is therefore necessary that all the firms on the list should receive orders frequently enough to ensure that their efficiency on naval work is fully maintained.

10. It is manifestly impossible from the political and financial points of view to undertake so large a measure as the nationalisation of the firms on List B. Even if this were not so, the insuperable difficulty would remain that it would be impossible to keep all these establishments more than very partially employed in peace unless they were permitted to undertake commercial work on a considerable scale. If all these nationalised establishments were permitted to compete in the market for commercial orders, the result might very well be that in a very short time all shipbuilding work in this country would be concentrated in government hands, since the few private firms remaining, with their already depleted resources, might be expected to find it difficult to compete with such a vast government concern, backed by the unlimited resources of the state. As it would be able to devote a large part of its activities in peace to merchant shipbuilding, it would be in a much more favourable position for undertaking this class of work than the existing Royal Dockyards, or any other establishments whose merchant shipbuilding would be essentially a "side line." The Commission will appreciate that a proposal likely to have such consequences would raise far-reaching political and administrative problems.

11. On the other hand, if the establishments were maintained in almost complete idleness, constructing between them only the normal peace time requirements of the Royal Navy, the whole object of their nationalisation would be lost, since their efficiency not merely for naval purposes but even as shipbuilders would rapidly deteriorate. Furthermore, even assuming that the employees displaced could be absorbed elsewhere, there would be an immense social wastage in so far as the capital would be idle, and the cost of this wastage would fall upon the state. The extent of such wastage and the corresponding unproductive interest charge which would require to be paid out of public funds cannot be estimated with any degree of accuracy.

12. The conclusions therefore are:—

(a) That a moderate measure of nationalisation, on the lines of List A would involve the state either in considerable financial loss, or in competition with private interests for commercial work; and would not eliminate private manufacture, since it would be necessary for the Admiralty to retain freedom to place the bulk of its orders for warships with the private industry upon which it would continue to depend in war.

(b) That if the Admiralty did not retain such freedom, it would be necessary to nationalise the appropriate capacity of all firms on List B. These establishments would require to be kept occupied mainly on commercial work; and the measure would in practice amount to the nationalisation of the whole shipbuilding industry.

(c) That the proposal to nationalise the warship building industry in this country is so beset with difficulties that no significant or valuable estimate of the cost could be prepared.

* Not printed.

4024. Sir Philip Gibbs: In your statement you mention that the private shipbuilding firms have been through very bad times and that some of them have actually had to close down—like Palmer's of Jarrow. Does not that rather lead one to the thought that a

situation might arise when the private shipbuilding firms would be unable to expand in warship production as rapidly as required, and that therefore a greater responsibility would be thrown upon the naval dockyards? Is that possible?

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[Continued.]

Sir Reginald Henderson: I think it was explained that the naval dockyards are in the main for ship repairing as opposed to new construction. It is quite true that the Royal dockyards do construct ships, but that is only to keep our own eye in, as it were.

4625. *Sir Philip Gibbs:* The point of view from which I am asking the question is this: If another world crisis happened, an economic crisis, and our shipbuilding firms were gradually beaten back because the world market had fallen from them, as has been the case to a very large degree, might not a time arrive when the state would have to rely more upon its own warship building possibilities?

Sir Reginald Henderson: When that stage arrived I do not think there would be much left of this country, if you are visualising a time when the shipbuilding industry had been put out.

4626. *Sir Philip Gibbs:* At any rate, it might limit them very much in their activities?

Sir Walter Jenkins: That is one of the reasons why we want to encourage our shipbuilders to get foreign orders, so that it is not left to the Royal dockyards to build all the ships.

4627. *Sir Philip Gibbs:* Do not they build any warships at all?

Sir Walter Jenkins: They simply build the hull of the ship and put the engines in. They cannot make the armament and guns.

4628. *Sir Philip Gibbs:* Is not that an admission of something being rather weak?

Sir Walter Jenkins: That is only a subsidiary part of their work. The dockyards exist for the repairing of the fleet and keeping it in good condition. Shipbuilding is partly a sideline; it forms a nucleus that can be relied upon in ordinary times and it constitutes a training ground.

4629. *Sir Philip Gibbs:* As far as my own knowledge goes there have been very few orders for warships given to British firms during the last 18 years.

Sir Reginald Henderson: Foreign warships? 4630. *Sir Philip Gibbs:* Foreign warship building; very few orders indeed.

Sir Reginald Henderson: Relatively few.

4631. *Sir Philip Gibbs:* And many of the great firms in the north have really received no orders at all for foreign warships. Therefore, what I am asking you is this: Might it not be forced upon the state to establish warship building yards?

Chairman: Does it not follow if the private firms cannot do it then somebody else must do it, and if the only person to do it is the state the state must do it, and if the state cannot do it then we might say that the last state of the country is worse than the first?

Sir Philip Gibbs: It is not really a theoretical question, it is a question which has already arisen. Sir George Hunter up in Newcastle used to build warships for Japan and 22 other nations, but now he is not building for any other nation and therefore the situation has gradually altered.

The following memorandum was read:

COST OF NATIONALISATION.

B. MEMORANDUM BY THE WAR OFFICE.*

The question of the cost of "state monopoly" of arms is understood to mean, what would it cost the state to take over the manufacture of all those items covered by items (i) to (xx) of Article I of the Arms Export Prohibition Order, 1931, which are at present manufactured by private firms. Included in that cost would be the expenditure on taking over the works of private armament manufacturers, or parts of those works, at present engaged in the manufacture of "arms" and components of arms, the building of government factories as an addition to, or in

Sir Walter Jenkins: Immediately after the War there was no demand for warships at all and, as you say, the firms in this country have not been busy on a very large scale. I think they are a little busier now than they were a few years ago. They are not building the large ships that they did before the War. That is a fact. Their orders are for small craft for the smaller powers.

Sir Reginald Henderson: I should like to make it quite clear that, with certain exceptions, in the dockyards it is a jigsaw puzzle. Every single bit of material comes from outside, the dockyard only completes the jigsaw puzzle. There is no question of construction other than the hull and so on. For instance, as a matter of curiosity I may say that no less than 120 sub-contractors were concerned with the building of the *Queen Mary*. That is what you would have to consider if the state did the whole of the work. Even a little firm in Brighton did something for the *Queen Mary*. The work is scattered all over the country.

4632. *Sir Philip Gibbs:* Of course, nobody would ever argue that the state could provide its own warships and munitions of war without the co-operation of the whole industry of the country, but there might be an alternative to the present system by the state taking greater control, extending its own shipbuilding possibilities in its own yards and enlisting the services of the whole nation when required. That is the alternative plan which has been put up.

Sir Reginald Henderson: I think the alternative is to take over the whole of the shipbuilding yards.

4633. *Sir Kenneth Lee:* Complete nationalisation would be the alternative? I take it that the Memorandum on Defence, Command Paper 5107, expresses another view, and your view coincides with what is suggested in pages 15 to 19 of this memorandum, that is to say, the pages which outline the idea of getting more manufacturers to help?

Sir Reginald Henderson: That I agree with.

4634. *Chairman:* We pass to the next memorandum—Memorandum B by the War Office.

Mr. Borenschen: Before I start to read this memorandum may I make a personal statement, Sir? 4635. *Chairman:* Yes.

Mr. Borenschen: You have before you the Directors of Contracts of the Navy and Air Ministry. You have not the Director of Contracts of the War Office, but you have a Director of Finance in his place. The reason for that is that I was Director of Contracts from October 1932 to January of this year. It was decided in October last that I should succeed one of the Directors of Finance who was retiring. At the same time it was thought that it would possibly be useful to your Commission, and desirable on other grounds, that I should appear before you instead of the new Director of Contracts. There is no discourtesy to the Commission at all.

lieu of, such works and the compensation, if any, of manufacturers for the loss of their trade. For the reasons given below, which it seems right to bring to the notice of the Commission, the War Office does not think it possible to make any significant estimate of such cost, but suggests that such monopoly would be immensely costly as well as impracticable.

2. The articles included in the items covered by the Order referred to above are, in the main, in their finished state (with the exception of aircraft, explosives and firearms used for sporting purposes) not articles which in themselves are in common use by the general public. But some of them are closely

* Separate memoranda by the Admiralty and the Air Ministry are reproduced at pp. 660 and 666.

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[Continued.]

allied to such articles. For example, certain gun-sighting apparatus is made by the manufacturers of optical stores which are in general use. Such optical stores are not at present manufactured by the Ordnance factories, and it is certain that to construct factories and to train personnel for the manufacture of this gun-sighting apparatus in government factories instead of leaving the work with the trade, which can combine it advantageously with civil work, would be extravagant and costly.

Again, the items covered by the Prohibition Order include component parts. Many such components are taken over as they stand from commercial firms. The engines incorporated in armoured fighting vehicles may be commercial engines produced by motor manufacturing firms. Similarly, chemicals required for explosives are manufactured commercially for ordinary trade purposes. It would be impossible, without an incursion of the government into general industry on a very large scale, to ensure that weapons were government-manufactured from start to finish.

It would be impossible to attempt even an estimate of what would be involved in taking over the manufacture of stores that are closely akin to civil stores, and of components, without a very clear definition of the extent of such taking over. But it may give the Commission some idea of the complexity of the issue if it is stated that there are some 150 firms noted on the lists of War Department contractors for the articles included in the items covered by the Prohibition Order, who have received orders since the War. The orders received by many of these firms from the War Office form only a very small part of their normal business.

3. In practice the scope of "state monopoly" must be regarded as being confined to the manufacture, with such purchase as may be necessary, of components from general industry, of the well-recognised weapons—guns, rifles, tanks, ammunition—which only governments require, and which they, generally speaking, allow no private individuals to acquire.

4. If these weapons alone are considered, then it is quite possible for the Royal Ordnance Factories, with considerable extension, to meet all the peace-time requirements of the Army in practically all kinds of weapons. This is true of normal peace requirements, but not of the expanding requirements of the present time, when the deficiencies, due to limitations on expenditure in force for a considerable period, are being made good.

5. The necessary extension of the factories to cover all peace-time requirements would of course cost an appreciable capital sum, and the disappearance of the trade would mean that, whatever financial assistance towards the maintenance of plant and staff is afforded by the trade's foreign or ordinary commercial work, would be lost. What the financial effect of this would be is very hard to say.

6. In a war of any magnitude, however, it is quite clear that no nation could conceivably confine the manufacture of arms to state factories. Industry in general would inevitably be diverted to war production to the maximum possible extent.

7. The expansion of army needs in war-time is enormous and would make a demand of the greatest magnitude on general industrial capacity.

8. The problem is, how to tide over the gap until the resources of general industry can be turned, as they must inevitably be, to meet army requirements.

It would be useless and expensive to endeavour to provide for the necessary expansion by providing additional government factories in peace and leaving them idle. A totally closed factory could not expand in the necessary time. It would be perhaps less useless, but certainly still more expensive, to provide additional government factories and give them work in peace solely to secure their expansion capacity in war.

9. The conclusion to be drawn is that it is a practical necessity to have in active operation in peace, in addition to the government factories, a trade whose capacity for production is available at the critical moment to help to meet our needs in war to an extent far greater than can be measured by the actual arms production of the trade itself in peace. Still more valuable is the existence in the trade of nuclei of skill and knowledge which make possible the further vast expansion which must be carried out. If these resources within the trade were not maintained—and they can be maintained only by peace-time orders—expansion could not be achieved without a delay which must almost inevitably prove fatal.

10. If, however, it is assumed that provision can be made for the substitution of state manufacture for private manufacture, various methods of substitution would have very different costs and very different results.

11. The two most obvious alternatives are that—

(a) the necessary capacity would be provided by extending government factories and throwing over the existing firms;

(b) existing firms would be taken over by the government.

12. If, however, it is assumed that provision can be made for the substitution of state manufacture for private manufacture, various methods of substitution would have very different costs and very different results.

13. In the latter case it would be extremely difficult to take over only the "arms-manufacturing" assets and not more. Compensatory terms for compulsory purchase would presumably have to be paid. Whether there would be any claim to payment for goodwill is a matter which would require consideration, but in any case the breaking up of productive units at present organised partly for arms-manufacture and partly for other trade would in itself demand some special compensation.

14. To sum up: the War Office does not regard it as possible to make any significant estimate of the capital cost of providing, in the shape of going government factories, a capacity for war expansion equivalent to that of the existing arms trade: it is clear, however, that the capital cost would run into many millions, and the additional annual cost of anything like effective operation would be heavy; from the point of view of expansion in time of national emergency government monopoly is to be avoided as much as possible.

4636. *Chairman*: I have only one question to ask you. In the last four lines of paragraph 9 you say, "If these resources within the trade were not maintained—and they can be maintained only by peace-time orders—expansion could not be achieved without a delay which must almost inevitably prove fatal." Do you include in "peace-time" orders foreign orders permitted by licence?

Mr. Bovenchen: It is really immaterial from what source the orders come, so long as they are orders.

4637. *Chairman*: Do you contemplate that there are sufficient peace-time home orders to keep the trade going?

Mr. Bovenchen: We certainly hope foreign orders will be such as to help keep the trade going.

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[Continued.]

4638. *Chairman*: You include and assume a continuation of export under licence?

Mr. Bovenchen: Oh, yes, Sir.

4639. *Chairman*: And you consider that essential?

Mr. Bovenchen: If there is no foreign trade it has to be made up in some way from home sources, and then the only addition that you have to government orders is the capacity of the firms to combine with that commercial work, possibly of another character.

4640. *Dame Rachel Crowdy*: Is it not a fact that at the moment, under this new re-arming scheme, private firms have more than enough to do with their home orders? I certainly got that impression from talking to private manufacturers, that they hardly know how to carry out what they have undertaken under the new scheme.

Mr. Bovenchen: That may be the position at the moment when the government is making good deficiencies, but I am not sure whether you can argue as though this particular condition is normal. What is the normal nobody knows.

4641. *Dame Rachel Crowdy*: How long do you yourself feel that it will be before these deficiencies will be made up, quoting your own words. Is it a 5 year plan, a 10 year plan or a 100 year plan?

Mr. Bovenchen: Not a 100 year plan.

Sir Hugh Ellis: It is as short a plan as is possible. It very much depends upon what industry can do.

4642. *Dame Rachel Crowdy*: I was thinking about the White Paper, dealing with that very expensive and intensive scheme.

Sir Reginald Henderson: May I say that the deficiencies will be made good in the space of a comparatively short time, as opposed to your 10 years, but it does not necessarily follow that they will all be made good. It will be relative. For instance, if we lay down a battleship it will take 4 years to build it. That deficiency will not be made good for 4 years, but broadly speaking I should say that a start will be made very quickly to make good the deficiencies.

4643. *Dame Rachel Crowdy*: Therefore you feel that, although the process may be slow, the private manufacturers will be kept extremely busy for a fairly large number of years with their home orders?

Sir Walter Jenkins: I would not like to say that applies to warships. There are certain weapons of which, I take it, there is a very large deficiency.

4644. *Mr. Spender*: Is it not purely a relative matter? It depends upon what other countries do in the meantime. Can you set any term for making good the deficiencies?

Sir Walter Jenkins: If other countries proceed to do a considerable amount of re-arming, the longer it will take to replenish our deficiencies.

4645. *Mr. Spender*: You have a certain norm in your mind with regard to disarmament, but then by the time you have carried that out you cannot be sure that somebody else will not have established another norm?

Sir Walter Jenkins: I think it has been stated in the House that if other countries show a disposition to relax their armament preparations we should be willing to reciprocate.

4646. *Sir Philip Gibbs*: May I ask you one or two questions, Admiral? When you allude to private industry it seems to me that you are including the private engineering and manufacturing capacity of the nation, and that you are not alluding exclusively to the armament manufacturers. Is that so?

Sir Reginald Henderson: Yes, the whole engineering industry of the country.

4647. *Sir Philip Gibbs*: I think one has to draw a dividing line in one's mind, in asking these questions, between the whole industrial capacity of the country and the private armament firms. I suppose you will agree that the private armament firms are totally insufficient in themselves to meet a great expansion?

Sir Reginald Henderson: You refer to all three services?

4648. *Sir Philip Gibbs*: Yes, if you like; to all three services.

Sir Reginald Henderson: That is quite true.

4649. *Sir Philip Gibbs*: That is a very vital point for the consideration of this Commission, that there may be some organisation necessary for enlisting the whole engineering and manufacturing capacity of the country without absolute reliance on the private armament firms. There may be some other organisation which is advisable.

Sir Reginald Henderson: I am not quite clear what you call an armament firm. Will you tell me exactly what you mean by an "armament firm"?

4650. *Sir Philip Gibbs*: There are some private firms which specialise in the making of weapons.

Sir Reginald Henderson: Yes, but they make other things as well.

4651. *Sir Philip Gibbs*: It seems to me that under the present scheme in the White Paper these armament firms are already recognised as being incapable of that great expansion necessary in time of war, and that therefore there is a tendency for the government to enlist the general manufacturing capacity of the country. Would you agree with that?

Sir Reginald Henderson: Yes, definitely, absolutely.

4652. *Sir Philip Gibbs*: I was wondering whether I might ask how far the services are prepared to carry their argument about foreign orders. The Air-Marshal here has talked about the health of the industry. But the health of the industry, if you carry your argument far enough, may lead to the death and disease of the nation, and if you carry this argument about foreign orders for warships and weapons to any extent, it seems to me that you are endangering the safety of this country. Do you see any limit to which foreign orders ought to be restricted?

Sir Reginald Henderson: I suppose there is a limit. It rather depends on capital expenditure.

4653. *Sir Philip Gibbs*: You would agree that it is necessary to control the export trade to some extent?

Sir Reginald Henderson: It is entirely controlled under licence. You cannot export without licence from the Board of Trade.

4654. *Sir Philip Gibbs*: Is not your argument open to a charge of inconsistency? Certain gentlemen here say the more orders we get from abroad the better for the services, because it leads to the health of the industry.

Sir Reginald Henderson: Yes.

4655. *Sir Philip Gibbs*: But under the licensing system there is supposed to be some restriction?

Sir Reginald Henderson: That is the control.

4656. *Sir Philip Gibbs*: In your own mind where do you draw the line between what is good for the services and what is bad? Do you draw any line?

Sir Reginald Henderson: The object of the licensing system is to control the destination.

4657. *Sir Philip Gibbs*: But there seems to be a very considerable encouragement of foreign orders under the licensing system.

Mr. Bovenchen: It does not necessarily follow that we have reached saturation point. It is very undesirable to over-eat, but the exact point at which one starts to over-eat is a matter which can only be tested in a particular case.

4658. *Sir Philip Gibbs*: It seems to me that the services have not made up their minds upon the point as to whether they have over-eaten.

Mr. Bovenchen: As far as I know, there has been no question so far, with regard to foreign orders, that the table has been fully spread recently.

4659. *Sir Philip Gibbs*: Not very recently. During the last two or three years, but if you go back over a period of 50 years I think you will find that the

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[Continued.]

policy of free export which you favour has led to an enormous increase of danger and conflict in the world.

Sir Reginald Henderson: If they want it, they are going to have it. Does it matter very much from where they get it, or the purposes from the point of view of war?

4660. *Sir Philip Gibbs:* I think it does matter to some extent, because this nation, which led the way in engineering capacity, also led the way in the creation of armaments in the world—as, for instance, in the case of the Japanese navy.

Sir Reginald Henderson: I should also like to say that it leads the commercial world. For instance, *Sir Thomas Bell* at the launching of the *Queen Mary* said that the *Queen Mary* could not have been built if it had not been for their experience with naval engines. That was in his speech.

4661. *Sir Philip Gibbs:* All the services represented here to-day are taking a very strong line in favour of the traffic in arms.

Sir Walter Jenkins: Not the traffic.

4662. *Chairman:* The controlled traffic.

Sir Philip Gibbs: The controlled traffic in arms, but with a very distinct encouragement from the services behind it.

Sir Thomas Allen: The figures in this statement that I have show that the value of the exports of various descriptions of arms and ammunition from the United Kingdom during the past 12 months amounted to £3,680,119. That is apart from aero engines and aeroplanes.

Mr. Bovenchen: That is not necessarily to foreign countries alone, is it? Are not the Dominions and India included in those figures?

4663. *Chairman:* No, the Dominions are excluded from those figures.

Sir Thomas Allen: It includes ammunition, arms, torpedoes, and military and naval ordnance, but not aeroplanes or aero engines. It is a growing figure, compared with the figure given in the previous statement in the House of Commons in reply to a question put by *Mr. Lunn*. The figure was then one million and some odd thousands. With regard to this Memorandum B, we gather that nationalisation is practicable, it is only a question of cost. Otherwise you see no difficulty whatever?

Mr. Bovenchen: It depends upon where you draw the line.

4664. *Sir Thomas Allen:* I am taking paragraph 4, where you say: "If these weapons alone are considered"—that is the weapons referred to in paragraph 3—"then it is quite possible for the Royal Ordnance Factories, with considerable extension, to meet all the peace-time requirements of the army in practically all kinds of weapons."

Mr. Bovenchen: If you are referring to the final stages, and not to the manufacture of the components throughout, such as the engine for the tank, the tractor for the tank, then the answer is yes.

4665. *Sir Thomas Allen:* It has never been contemplated, as far as I remember, by any witness who has come before us that under a national armaments system—short of complete nationalisation—a vast number of supplies of subordinate parts would not continue to be obtained from private firms. You have here a very much simpler proposition than under Memorandum A, which precedes it.

Mr. Bovenchen: If you are confining it to those particular things—

4666. *Sir Thomas Allen:* I am dealing now with Memorandum B and not touching at all upon Memorandum A. You come to the conclusion in your own mind that it is practicable and possible.

Sir Hugh Elles: For peace requirements only. 4667. *Sir Thomas Allen:* We are in times of peace at present, are we not, and it is contemplated that you may spend £100,000,000 or £200,000,000, or whatever it may be, perhaps up to £500,000,000. Speaking as a simple-minded commercial man, if I were entering into a business where £50,000,000 or

£100,000,000 was going to be spent I would naturally look around to produce, if I could, something for myself out of that expenditure, rather than lay it out upon somebody else. Is not that a practical business proposition for the government, in contemplating development such as they are doing, that they should make a trial to see what they can do in one particular direction?

Sir Hugh Elles: You mean a large extension of ordnance factories?

4668. *Sir Thomas Allen:* Taking this particular paragraph 4 and making a sort of national experiment.

Sir Hugh Elles: Something that will go some way to meet war requirements?

4669. *Sir Thomas Allen:* Yes.

Sir Hugh Elles: Or part of them.

4670. *Sir Thomas Allen:* You are doing that now.

Sir Hugh Elles: But when the pressure goes off—as one hopes it will go off—then you are stuck; you have the maintenance of a nucleus that you cannot employ. You are putting a burden on the annual maintenance votes. That is the big objection to extending your government factories.

4671. *Sir Thomas Allen:* It does seem to some of us that it would be much more economical. Take, for example, the programme under the White Paper. You will now bring an increasing number of firms into touch with armament making. From an economical point of view it does seem that there is an opportunity for the government to take a wider interest and a larger place than it is attempting to do. And that without any risk whatever.

Sir Hugh Elles: There are certain directions in which we have got to expand the government factories, and that expansion will run us into very large expenditure, but it is for the fulfilment of functions which cannot be fulfilled by private enterprise. I think the feeling of all the departments is this, that the less we pile up our commitments in the normal period the better it is going to be for the state. We have been very hard put to it in the last few years, as *Sir Reginald Townsend* will tell you, to keep the nucleus personnel of the Arsenal going at all; in fact in certain directions they have been absolutely down to bedrock.

Sir Reginald Townsend: May I say, from the factory point of view, that I have advocated extending factories only where I could see a possibility in future lean years of keeping the Arsenal alive. A closed factory is not of very much use to us. On certain manufactures, as *Sir Hugh* has said, we are at the moment contemplating huge expansion. That is where the trade cannot normally help us. May I make one other point about that? We were down to very hard times in 1933-4; in Woolwich we were down to 6,700; now we are up to 11,000 or so; but at that time we hardly had enough work to keep the nucleus of the crafts and trades alive. If we had had to furnish them up in two or three factories it would have been impossible. There was not enough to go round.

4672. *Sir Thomas Allen:* We view with widening apprehension the fact that a lot more firms are to make armaments in this country and by and by we shall be again in an awkward position. Those firms will be equipped, and if we could see some gesture on the part of the government—because all these things will have to be paid for ultimately by the state—that it was making some additional effort to meet the situation, through nationalisation, or national factories, it would relieve our minds somewhat. It seems to us that there is a continuous process of dependence upon private industry and that little or no attempt is made to deal with this problem as a national proposition.

Sir Hugh Elles: As a government monopoly, or rather in that direction?

4673. *Sir Thomas Allen:* Well, you can call it a monopoly if you like. Under a monopoly private enterprise would have a larger place in providing the subsidiary material.

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Sir Reginald Townsend: We are extending our factories considerably at the moment. We are extending at Birtley, we have a big programme there, and we have also a big programme, costing some hundreds of thousands of pounds, at Hereford. That is just starting. So we are not left entirely in the cold. On the explosives side, we are starting a new factory in Scotland. It will commence to operate in November of this year. On the filling side—

4674. *Professor Gutteridge:* You are out to make the Bren gun?

Sir Reginald Townsend: We are preparing at Enfield to make the Bren gun in the Royal Ordnance Factory.

4675. *Sir Thomas Allen:* We appreciate your position as service men, you want to be safe in any eventuality, but it does seem to some of us—we may be wrong—that your minds are running in just that groove in which they have run for generations, and that there has been no real attempt to make a move forward in the direction of the state doing something for itself in that direction. That would not only be economical but I am sure it would satisfy very largely the public conscience, which is very much disturbed now in that particular regard. Can you help us a little?

Mr. Rosenzhen: I think, Sir Thomas, if I may say so, in considering how to meet the deficiency programme the department is in fact considering where it would be desirable to expand by way of ordnance factories, but in certain instances, to use your own words, it is more economical, and produces, probably, more rapid results, to take the capacity that is already available and to use a portion of that for expansion. I do not know whether that answers your point, but I think that it does.

Sir Hugh Elles: There is no intention, Sir Thomas, of creating new armament firms. What we are trying to do is to take the normal engineering firms and to educate them to be able to make, let us say, shell against the time of emergency when the energies of the whole of the engineering industry will be diverted to war work, if ever such a situation arose as it did in the last war. There is no intention of creating new armament firms.

(Adjourned for a short time.)

On resuming:

4679. *Chairman:* Gentlemen, we do not want to keep you here longer than is really necessary, and I have been thinking over whether it is really necessary to continue reading these statements. Of course, we have them and we have read them and shall no doubt read them again, and they are available to the press; and therefore although from some points

4676. *Sir Thomas Allen:* But you do seem to intensify the monopoly which they already hold.

Sir Hugh Elles: I am not sure that we do that. 4677. *Sir Thomas Allen:* What I am a little distressed about personally is this: These particular firms are letting out already a good deal of their work to sub-contract, which was a very deplorable feature of the last war until the Ministry of Munitions took over and regulated it. There is no regulation now; you are depending upon the old firms, as before; they in their turn are giving out the work, and it does not seem to some of us to be on quite the right lines.

Sir Hugh Elles: I think we are developing a good deal beyond purely the old firm, on the lines that I have suggested. I think that if it is the duty of a citizen to defend his country—as it used to be—perhaps it is equally the duty of those who will not go into the front line to make munitions. That is rather the idea that is behind our conception of the whole thing. A firm devotes, we will say, one-twentieth of its supervision to making so many thousand shells and so on; it puts down so much plant inside its building and so much outside; that is what we call balancing the plant. When the emergency comes you have your nucleus personnel on the spot. That firm is working as a peace-time firm, not as an armament firm; when the emergency comes they can take more machinery into their shop and you get multiplication of production. That is what we are trying to do. There is an advantage over the government factory in this way, that you have your personnel on the spot. In the case of the government factory you have to bring in your personnel, that means that you have to dislocate somebody else, you have to get your personnel from somewhere, and the people who go into the government factories and who swell the government personnel 10-fold are leaving a lot of machines behind in industry doing nothing, which might be devoted to useful work.

4678. *Sir Thomas Allen:* When a man goes into the trenches or the front line he goes there as a nationalised individual. Why should he not go into a government factory on the same terms?

Sir Hugh Elles: That raises a wide political issue which I would rather not deal with.

The following memorandum was submitted:

COST OF NATIONALISATION.

C. MEMORANDUM BY THE AIR MINISTRY.*

The Memorandum on this subject prepared by the War Office can be taken as applying to the interests of the Air Ministry also so far as they relate to machine guns, ammunition, bombs or other warlike stores. The present memorandum deals with the question only from the point of view of the nationalisation of the firms which are contractors to the Air Ministry for airframes and aero-engines and certain components or accessories

of a specialised kind. The purely civil aircraft constructors are ignored.

Nationalisation might take various forms. For example (1) the state might take over the aircraft and engine factories which now supply the Royal Air Force on a basis of private profit, and convert them into national factories. Alternatively (2) the state might compensate these factories for loss of government business and start new national factories instead, leaving the existing factories to

* Separate memoranda by the Admiralty and the War Office are reproduced at pp. 669 and 662.

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[Continued.]

wind themselves up or to devote themselves to civil aircraft work, though the demands of civil aviation are—and are likely to remain for a long time to come—on so small a scale that they would only provide employment for a fraction of existing capacity.

The cost under alternative (1) would depend upon the basis of calculation adopted for the purpose of buying out the aircraft and engine firms. If it were decided to purchase them outright at current market prices, the cost would not be less than £25 millions.

Alternative (2) could be adopted more cheaply. The cost on this basis may be tentatively assessed at between £12½ and £15 millions, of which some

£7½ to £10 millions would represent very roughly the value of the works and plant of the aircraft industry or alternatively the probable cost of building national factories to take their place. The balance is due to the fact that in addition to the cost of replacement there would undoubtedly be considerable expenditure on compensating the present companies for the destruction of their business. The basis on which such compensation would be payable would need careful consideration but a moderate estimate is £5,000,000.

What method of nationalisation and consequent compensation should be adopted is, of course, a political question.

4680. *Chairman:* Does anybody wish to ask a question upon that? If not, then we will go to No. V—

on the comparative costs of production.

The following memoranda were submitted:

V. COMPARATIVE COSTS OF PRODUCTION.

A. MEMORANDUM BY THE ADMIRALTY ON COMPARATIVE COSTS OF BUILDING WAR VESSELS IN H.M. DOCKYARDS AND IN PRIVATE YARDS.

1. For the proper consideration of the question of comparative costs of dockyard built and contract built war vessels, it is important that it should be realised that whereas the commercial building yards are laid out and equipped in all their essentials for the definite purpose of building ships, H.M. Dockyards are not primarily shipbuilding establishments, but have been developed and are kept in being mainly for the purpose of maintaining the Fleet in a proper state of repair and providing accommodation for the storage and distribution of its necessary equipment.

The character of this organisation for the primary function of repair work was seen last year when tenders were invited from shipbuilding firms for the large refit of a 10,000 ton cruiser, and it was found that the cost of undertaking the refit in one of H.M. Dockyards was much lower than in a private yard.

2. Shipbuilding is in fact, only a secondary function in dockyard activity and its extent must at all times be governed by the programme of other work (fleet repairs, etc.) in prospect. The existing capacity of the dockyards for new construction work is, moreover, very considerably short of that required for a full normal building programme and private firms are, in the circumstances necessarily relied upon for the major portion of warship building, and almost entirely for the manufacture of ship machinery, dockyard production of which can only be carried on to a limited extent.

3. Dockyard conditions for new construction work being as stated, it will be appreciated that dockyard costs inevitably include a substantial element of on-costs (reckoned at 40 per cent. of the total thereof) which, for the purpose of fleet maintenance, must be incurred whether or not new construction work is undertaken. In effect the building of a vessel in a dockyard does not involve additional expenditure to the full extent of the costs assessed for her construction.

4. In contrasting costs the following points must also be borne in mind:—

(a) for the most part only the hulls of vessels are constructed in H.M. Dockyards. The machinery, boilers, gun mountings and to a great extent the structural and other material required for the building of a ship are purchased by contract and whatever element of profit there is in the manufacture of these items falls to these contractors, wherever the vessel is built.

The composition of costs for dockyard and contract built ships, on the basis of a cruiser may, in fact, be stated thus:—

	Dockyard Built (approximate percentage)	Contract Built (approximate percentage)
Payments to contractors for contract work and material	71	96
Dockyard labour ...	17	1
Dockyard on-costs ...	12	1
	100	100

(b) No two ships are exactly alike in the matter of construction of fabric and fittings however close their dimensions, armament, horse power, etc., may appear. Differences in types of mountings, extent of welding on structure and a number of minor features may affect the total cost to an appreciable degree.

(c) The construction of hulls by contract involves the Admiralty in certain expense for overseeing, etc., which is not treated as part of the building costs; in dockyard construction expense of this nature is avoided.

5. In actual practice, if the assessed costs of building in the dockyards are fully taken into consideration, and the varying conditions in dockyards and private yards are borne in mind, the final costs do not appreciably differ even when account is taken of the fact that contractors in lean times cut their prices. Certain types of vessel—cruisers for example—can in the normal course be built as economically in the dockyards as by contract and it is the practice, therefore, in the allocation of work to assign to the dockyards such cruiser tonnage as is possible within their building capacity and with due regard to the programme of Fleet work in prospect. Facilities in the dockyards for the construction of destroyers are not, on the other hand, entirely suitable and experience is that this type of vessel can, both on grounds of efficiency and cost, be built to greater advantage in private yards.

As regards submarines, the first of any new class is by its nature experimental and it is the general practice for such vessels to be built at a Royal Dockyard. As a rule it is not until the design is established as a result of building experience with the first vessel(s) that outside contracts are invited for the remainder of the class. It follows that, taken over

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any period covering the introduction of new types, the cost per ton of dockyard built submarines, which allows for the necessary experimental and development work, is on the average higher than that for contract built vessels, but for those types which do not contain the experimental element, dockyard and contract prices correspond fairly closely.

6. The attached statement shows the comparative costs of similar vessels of different classes built during recent years in the dockyards and by private contract.

7. Full building costs are indicated for each vessel, and for those built in the dockyards the amounts for on-costs, included in the totals, have been shown separately.

8. It is considered that the public interest is well served by present arrangements, under which the dockyards undertake such shipbuilding as the programme of repair and other work allows and the balance of new construction work falls to the private trade.

9. New construction work, although subject to interruption to meet other demands, is essential in the Royal Dockyards. It absorbs labour in slack times between refitting periods, thereby upholding the policy of the government in giving continuity of employment. Furthermore, it helps to maintain a high standard of efficiency in dockyard work, provides the necessary trained staff for overseeing the construction of ships built in private yards, as well as trained personnel required to meet expansion in times of emergency or war.

COSTS OF SHIPS BUILT BY CONTRACT AND OF SHIPS OF WHICH HULLS WERE CONSTRUCTED IN HOME YARDS.

	Contract Built.	Dockyard Built (including on-costs).	Dockyard On-costs.
Cruisers	£	£	£
Orion ...	—	1,423,378	(182,507)
Neptune ...	—	1,408,895	(174,343)
Achilles ...	1,495,404	—	—
Ajax (a) ...	1,421,597	—	—
Arctura (a) ...	—	1,200,161	(172,633)
Galatea ...	1,169,733	—	—
Destroyers			
Comet and			
Cressider ...	—	598,002	(80,468)
Cygnets and			
Crescent ...	549,303	—	—
Leaders			
Exmouth ...	—	347,109	(47,954)
Faulknor ...	319,589	—	—
Duncan ...	—	300,362	(41,299)
Kempfenfelt ...	281,671	—	—
Submarines			
Snapper (b) (a) ...	—	230,996	(68,734)
Salmon (b) ...	227,729	—	—

(a) The figures are to a very small extent approximate.

(b) The design of these submarines was already established.

B. MEMORANDUM BY THE WAR OFFICE ON COMPARATIVE COSTS OF PRODUCTION OF ARMAMENTS &c. BY GOVERNMENT ESTABLISHMENTS AND PRIVATE FIRMS.

1. The Commission have asked for evidence as to the comparative costs of production of armaments, etc., in government establishments and private firms. As to the form of this question, it must be observed in the first place that the issue is ultimately one, not of the comparative costs of production, but of the comparative prices charged to the purchasing departments. In the case, however, of the ordnance factories (which are the government establishments with which the War Department is concerned) the prices charged represent, as explained below, the actual cost of production, whilst, in the case of the trade, War Department contracts frequently, and especially in the case of stores for which competition is not available, give powers to inspect books, so that the department has a good deal of confidential knowledge about trade costs also. The question of comparative costs, as well as that of comparative prices, cannot therefore be ignored. Use is made of this comparison where practicable in peace, e.g., for communicating to a firm where ordnance factories costs suggest the possibility of savings and it would be of special importance in considering the emergency situation when it is possible that the majority of prices would be compulsorily determined with reference to a cost basis.

2. In allocating orders between the factories and the trade the comparative prices are naturally amongst the factors considered; whilst after allocation, in the case of all War Office requirements where the ordnance factory order amounts to £1,000 or over and there is a comparable trade order, formal comparisons between these prices are regularly made.

* *Note.* It must be mentioned, however, that the actual allocation of work between factories and the trade is subject to, and governed by, the policy which has been confirmed by successive governments that it is necessary to maintain the factories at at least a nucleus strength and at the same time as far as possible to keep in being the productive capacity of the trade.

and unexpected differences are inquired into. Broadly it may be said that the two parties hold their own with each other fairly well.

3. Two questions may perhaps be asked when ordnance factory and trade prices are considered:—

(a) Does the ordnance factory costing system secure that the prices charged represent the true cost of the products?

(b) Is the cost of the ordnance factory products incurred under the same conditions as the trade costs are, and does it include the same elements?

4. The answer to question (a) above is, broadly speaking, in the affirmative. Under the ordnance factories costing system the whole of the expenditure incurred by the factories on production of any description is recorded for each order under three main heads—(i) direct labour, (ii) direct material, (iii) indirect expenditure or factory expense. The direct labour and direct material employed in manufacturing the product are naturally charged up to its cost in full. The indirect expenditure—which it may be observed includes depreciation charges levied at normal commercial rates on the machinery and other capital assets used in the manufacture—is distributed systematically over the various shops, and the quota thus allotted to each shop is again systematically distributed over the products of that shop. The object of the approved rules governing this systematic distribution of the indirect expenditure is to ensure that it shall be taken up by the products of the factories (a) in full, and (b) by a method which precludes the possibility of favouring the costs of some products at the expense of the costs of others.

5. The statement made and explained in the preceding paragraph to the effect that the ordnance factory costing system gives the true cost of the product should perhaps be qualified by a reference to the subsidy, which is paid to the factories in cash by the defence departments in consideration not of

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any production of goods but of the fact that the factories retain large reserve assets in the shape of buildings, plant and machinery, against the need of expansion in emergency. This subsidy, however, which amounts at present to about £120,000 a year in comparison with about £3,000,000 annual value of output of goods (in 1935), is not relatively a large matter, and if it were abolished the prices of the goods supplied would not be increased on the average by more than 4 per cent. at the outside. If, on the other hand, concurrently with the abolition of the subsidy, the reserve plant, etc., in respect of which the subsidy is paid were also disposed with, it is safe to say that no part of this 4 per cent. increase on prices would be incurred, since the expense to which the factories are put in connection with the upkeep of their reserve plant—which expenses, except in so far as met by the subsidy, must be charged in the prices of the goods that the factories supply—are certainly not less than the amount of the subsidy.

6. To turn now to the question raised in paragraph 3 (b) above, as to how far the costs incurred by the Ordnance factories, and charged, as stated above, as their prices, resemble or differ from the corresponding costs incurred by trade firms, and how far the factories and trade work under the same conditions, it may be said in general that the factories are run as far as is practicable on a commercial basis. The great bulk of their staff are weekly wage earners, without pension rights, and liable to discharge when work is not available for them; indeed, the strength of the factories is constantly fluctuating.

7. There are, however, numerous and important respects in which the two parties must necessarily differ; the following give some of these in the form of brief headings:—

(i) Advantages enjoyed by the factories.

(a) The above-mentioned subsidy—say 4 per cent., based on the production for 1935.

(b) No profits need be earned and no interest paid on capital.

(c) No selling organisation needed.

(d) No bad debts.

(e) Minimum volume of orders guaranteed even in lean years. (But there is a certain correlated disadvantage—see (k) below.)

(f) Salaries of highest ranks lower than in outside life and some expenses incurred on behalf of factories, e.g., salaries of staff in the War Office connected with the administration of the Ordnance Factories, are not charged against the factories at all.

(g) Expenditure on design work is charged to the services concerned separately from the cost of manufacture.

(h) Prices do not include packing of stores and delivery to army depôts, as trade prices do.

(ii) Disadvantages suffered by the factories.

(i) No market for anything practically but warlike stores. (There are a few exceptions but not important ones.)

(j) No market outside British and other Empire governments for warlike stores.

(k) Minimum output must be regularly given, even when production is not economical, which it is not when the strengths are low. It follows also that sometimes work is allotted to the factory which is not wholly suitable for the most efficient production and the resultant costs are not a true reflection of the factory's efficiency.

(l) Large reserve capacity must be kept up (per contra to (a)). (But it is known that some trade firms keep up quite appreciable reserves of plant.)

(m) Male wages rates in the matter of the "Morris Award" higher than in outside trade and some special privileges (leave with pay, and pensions to minor staff grades) given which are on the whole probably better than the trade gives.

(n) Female labour not employed.

(o) Woolwich is looked to to produce experimental and special types of stores in comparatively small quantities and to meet specially urgent demands, especially where design is not complete. (To some extent this may also be required of the trade.)

(p) Woolwich is liable to frequent interruptions in the programme of work to meet service demands. This may of course apply to some extent to the trade in times of increasing expenditure on arms.

(q) Metropolitan Police superannuation paid in return for no service now rendered.

(r) Woolwich is badly laid out—many old scattered buildings expensive to maintain and heat.

(s) The factories have no discretion in price making; their prices must reflect their accounting rules, whereas the trade can on occasion make a low price for reasons of policy.

(t) Trade do straight production of new stores, the Ordnance Factories do repair work as well. The repair work amounts to about 20-25 per cent. of total output. This probably increases their costs generally by preventing them from organising themselves in a simple way, as for routine.

8. It is not possible to evaluate all these differences in terms of money, but the net result of them is to show that the factories and trade work largely under different conditions and for different purposes, so that differences in their prices would not necessarily imply any difference in manufacturing efficiency. Indeed the general view of the War Office is that both the factories and the trade are efficient and that the prices of both of them are, in general, reasonable. It is seldom, of course, that the bare prices for any article can be taken at their face value as various casual factors, differences in the product, etc., are generally present. Further it is not to be expected that one or other party will regularly be the cheaper of the two.

4681. *Chairman*: There are one or two questions I want to ask about that because the other day I was rather taken to task for suggesting that in the government dockyards it was not true to say that guns were supplied from outside. What is the fact about the guns? They are supplied from outside, are they not? They are not produced in the dockyard?

Sir Reginald Henderson: The Royal Ordnance Factory supplies a certain number, but all gun mountings are supplied from outside. There is just the difference between a gun mounting and a gun, a technical detail; but, broadly speaking, all the gun mountings come from outside and 77 per cent. of the guns.

Sir Walter Jenkins: May I supplement that? I read that Dr. Addison in his evidence claimed that the Ministry of Munitions bought all the arms used in the Great War.

4682. *Chairman*: Where are you reading from?

Sir Walter Jenkins: I thought I would supplement this statement. Perhaps it would come better really at a later stage.

4683. *Chairman*: Very well.

Sir Walter Jenkins: On Memorandum VI perhaps.

4684. *Chairman*: I think the net result of this part of the statement is that the view is that the costs do not appreciably differ.

Sir Reginald Henderson: That is true.

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4685. *Chairman*: Sometimes one is cheaper than the other, and it is sometimes the other way.

Sir Reginald Henderson: The system of accounting and various other things are rather different. For instance, we have a chapel in the dockyard and that comes under our costs. Well, a chapel is not actually bound up in the job. It is very difficult to get an absolutely true comparison.

4686. *Sir Thomas Allen*: I should like to ask one question. I gather from Memorandum V that the present arrangement is that government dockyards give principal attention to repair work rather than constructive work, that constructive work is secondary to repair work and that with regard to the private firms constructive work predominates exclusively: they do no repair work at all.

Sir Reginald Henderson: That is so.

4687. *Sir Thomas Allen*: Could you enlighten our minds as to why this line of demarcation is drawn, why you should do practically all the repair work and private manufacture the constructive work, from this point of view, that when you are considering economies the repair work, of course, is more costly; when you are having a costing system and you want to compare between one firm and another you must take into consideration whether it is constructive work or whether it is repair work, and you would be in a disadvantageous position relatively when you were estimating the costs. Why particularly are you interested in repair work *vis-à-vis* constructive work?

Sir Reginald Henderson: One reason, of course, is that when a ship comes in for repair, until you open up the machinery and various other things you do not know what you are going to come across. If you had to place a contract with an outside firm you would be delaying things considerably. For another thing, the sailors generally live around their home ports, and when the ships are under repair they want a certain amount of leave. If their home port was Portsmouth and you put them up on the Tyne they could not get home for week-ends. The whole repair work of a ship and docking and that sort of thing is your whole basis on which you keep your ship fit, and you do not want to go to outside firms for the purposes of the ordinary alterations and additions every time there is some alteration and addition. It is much more expensive to get contracts for it and sketches for it and all that sort of thing. It is a very laborious method of proceeding. We have tried. There was a question of unemployment at Jarrow. We tried very hard and went to an enormous amount of trouble but the work could not be undertaken by them under competitive conditions.

Sir Walter Jenkins: May I also say that when a ship comes in to be repaired she has got to be de-stored, her ammunition has got to be taken out of her, and conversely when she has been completed she has then got to be re-stored and munitioned; and the storehouses, of course, exist at the dockyard base or in the neighbourhood.

4688. *Sir Philip Gibbs*: Am I right in thinking that the design comes from the Admiralty?

Sir Reginald Henderson: The design? Yes, certainly.

4689. *Sir Philip Gibbs*: Always?

Sir Reginald Henderson: Always. I do not say that private firms do not design, but the design as a whole is approved by the Admiralty.

4690. *Sir Philip Gibbs*: Yes, but would it be by naval architects employed by the Admiralty?

Sir Reginald Henderson: Yes, by the Royal Corps of Naval Constructors.

4691. *Sir Philip Gibbs*: In that case would those designs be available to the private firms for their own use?

Sir Reginald Henderson: For private firms?

4692. *Sir Philip Gibbs*: Yes.

Sir Reginald Henderson: Oh, no, they are not allowed to do the designing.

4693. *Sir Philip Gibbs*: Supposing, for instance, a private firm received an order for a battleship or a

cruiser from a foreign country, do you hold your own designs or would they be available for foreign countries?

Sir Reginald Henderson: Oh, they are not available for the other countries, not a bit. Of course, naturally whatever happened to have been the design is known to the particular firm who is constructing it, but they cannot go over the design or even construct a similar type to our designs without permission. They cannot turn them over. For instance, an inquiry has come in since I have been at the Admiralty from a foreign country, and they have asked for the designs and we have said, "Oh, no."

4694. *Professor Gutteridge*: Where is the experimental work done—at the dock or with the private firms?

Sir Reginald Henderson: Most of the experimental work is done in the dockyards, excepting that certain firms have got their own what are called tanks for stability tests, and so on. It is nearly all done in the dockyards. There are about ten of those tanks.

4695. *Professor Gutteridge*: I was thinking more of the type of a new cruiser.

Sir Reginald Henderson: The stability tests and that sort of thing are done in the naval tank at Gosport.

4696. *Professor Gutteridge*: Of course, you would be able to keep that to yourselves?

Sir Reginald Henderson: Oh, yes. That is in the dockyard premises.

4697. *Mr. Spender*: I suppose you can get, under your system, a fairly accurate comparison between the costs in the dockyards and the costs of private yards? I suppose in the case of a cruiser or a destroyer it is subject to a certain agreement as to the overhead charges?

Sir Reginald Henderson: Yes. I think these are as nearly accurate as you can get them. As I say, there is always some little thing that crops up, but if we were placing a contract for a ship to-morrow we should know within quite a reasonable sum whether it was a fair and reasonable tender.

4698. *Dame Rachel Crowdy*: If your British firm builds a ship for another country, a foreign country, does the firm have to get any form of permission from the Admiralty?

Sir Reginald Henderson: Certainly, a licence.

4699. *Dame Rachel Crowdy*: Is it true that the Admiralty then makes itself responsible for training the foreign crew if they care to come over?

Sir Reginald Henderson: No. We have never trained a foreign crew.

4700. *Dame Rachel Crowdy*: I thought you trained foreign crews for the submarines, for example.

Sir Reginald Henderson: No. You are thinking of the Portuguese?

4701. *Dame Rachel Crowdy*: I was thinking of the Portuguese—well, I was thinking of two cases.

Sir Reginald Henderson: No. We have never trained any or had any on board, but we have said if they like to work at Portsmouth and Plymouth they might do it, make use of those harbours where the firm who built the submarine could leave its technical people on board. They actually work at Portsmouth and Plymouth.

4702. *Dame Rachel Crowdy*: But the British navy's technical staff stayed on board?

Sir Reginald Henderson: No, we had no Admiralty technical staff there.

4703. *Professor Gutteridge*: I thought there was a case where a destroyer or something was supplied to Colombia and manned by British officers and crew?

Sir Reginald Henderson: They were retired.

4704. *Dame Rachel Crowdy*: Retired specially for the purpose?

Sir Reginald Henderson: Oh, no, not specially for the purpose. They had retired.

4705. *Professor Gutteridge*: I think they did not stay very long, did they?

Sir Reginald Henderson: Not all of them.

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[Continued.]

4706. *Mr. Spender*: In the case of battleships constructed in British yards, the British Government has the right of commanding these if necessary?

Sir Reginald Henderson: We had, but not under the Washington Treaty. I am not sure of this new one. I think it is the same but—

4707. *Mr. Spender*: Of course, it is a very important element in private construction. Have you waived that now?

Sir Reginald Henderson: In the Washington Treaty it was so, but I am not quite certain about the position under the recent treaty.

4708. *Mr. Spender*: Could we have information about that, because it is a very important element in private manufacture if you have the right of commanding?

Sir Reginald Henderson: Very important.

Sir Walter Jenkins: Perhaps we might make sure but I think we now have the right.

4709. *Mr. Spender*: In the case of the outbreak of the late War there was a Brazilian and two Turkish.

Sir Reginald Henderson: Yes. I will make quite sure on that point.* I know under the old treaty it was so.

4710. *Mr. Spender*: You mean the Washington Treaty?

Sir Reginald Henderson: The Washington Treaty.

4711. *Dame Rachel Goudy*: May I go back and put my last question in a rather different form? When we have built for a foreign nation and a crew comes over here—we may have misunderstood—are the foreign crew allowed to be on our ships of the same class in order to gain experience before they take over their own ship?

Sir Reginald Henderson: No. I am speaking from memory, but I do not remember such a case. There are a certain number of foreign officers—the Chinese, for instance—who have definitely asked that they might go through an engineering school. They have also wanted to go through an ordinary gunnery school, or something like that, and that has been allowed under certain conditions—the training of those particular officers. The crew that comes to take over the ship has no training by British officers at all, other than possibly the captain.

4712. *Sir Kenneth Lee*: The question of the comparative costs is very difficult to follow, because as I understood it, the naval dockyard really has these things and then put them together, according to what I understood earlier in your evidence?

Sir Reginald Henderson: Yes, that is quite true.

4713. *Sir Kenneth Lee*: Then how do you really compare costs between private manufacture and the dockyards?

Sir Reginald Henderson: Because the cost of what we buy is included in the total cost of the ship. It is all put in.

4714. *Sir Kenneth Lee*: But what is actually bought will carry the profit that the private manufacturer charges?

Sir Reginald Henderson: That is quite true, but the profit of the private manufacturer on the sub-contracts which the dockyard let is placed in the total costs of the dockyard.

4715. *Sir Kenneth Lee*: For instance, take the dockyard-built *Neptune*. What would the actual sub-contracts amount to out of that—two-thirds?

Sir Reginald Henderson: The hull and fittings—I would not like to say I am dead accurate, but I should think it is in the nature of 30 per cent. 30 per cent. of the cost of the ship is actually in constructing the hull and doing the jig-saw puzzle, the labour and the detail of that. But I will verify that figure because I should not like to be inaccurate in that.

4716. *Sir Kenneth Lee*: So that it would be actually cheaper if you did the whole of that, because you paid a profit on two-thirds and yet you produce at about the same price?

Sir Reginald Henderson: Yes, but, for instance, there are certain details which must go out to contract. There are people who make dynamos, and therefore they are going to get their profit on the dynamos they make. We do not want to start making dynamos. It is the same with all the auxiliary machinery and pumps.

4717. *Mr. Spender*: I suppose the private dockyard would be in the same position?

Sir Reginald Henderson: They do exactly the same thing; they sub-contract. I do not say all the firms do, but some of the firms do. Of course, some of the biggest firms can to a large extent complete a ship on their own, but they do sub-contract a tremendous lot.

4718. *Sir Kenneth Lee*: But nothing like to the same extent?

Sir Reginald Henderson: Well, I could quote six ships to-day where the hull has been made by one firm and the machinery by another—these are the two large items—and all the auxiliary plant, the electrical stuff and so on, is sub-contracted for. A very big firm like John Brown on the Clyde can make their own main machinery and boilers.

4719. *Sir Kenneth Lee*: So that this is really a fair comparison?

Sir Reginald Henderson: I think it is absolutely fair.

Sir Walter Jenkins: The division is given in the table in paragraph 4 of Memorandum V.A.* The payments to contractors for contract work and material are 71 per cent., the dockyard labour is 17 per cent. and then the on-cost is 12 per cent. That is practically the division of the costs.

4720. *Chairman*: May we pass to Memorandum V.B. That is a War Office memorandum on the comparative costs of production of armaments. I do not know who will answer this, but there is a footnote to paragraph 2, which is as follows: "Note.—It must be mentioned, however, that the actual allocation of work between factories and the trade is subject to, and governed by, the policy which has been confirmed by successive governments that it is necessary to maintain the factories at least a nucleus strength and at the same time as far as possible to keep in being the productive capacity of the trade." Now, the first question I want to ask is how many governments are referred to there as successive governments? Does it go back a long time?

Mr. Bevesen: It is since before the War. It has been the policy for I do not know how long before the War, but ever since I have been in the War Office, and I think ever since my first chief, Sir Charles Harris, was in the War Office. I think that policy has always obtained.

4721. *Chairman*: A considerable number of years?

Mr. Bevesen: Oh, a very large number of years.

4722. *Chairman*: There is another matter that I want to be sure about in this connection. You know that objection is taken to the export of arms as opposed to the manufacture of arms by private firms. It is said that the export of arms by private firms is necessary in order (to use the words of this note) to maintain the nucleus strength and at the same time as far as possible to keep in being the productive capacity of the trade. That is right, is it not, and the reason why it is thought desirable to maintain the export trade of private firms is that there are not enough home orders to keep them going, if I might use that expression. That is right, is it?

Mr. Bevesen: That is one of the main reasons.

4723. *Chairman*: Is there any means by which you could increase the home orders and so reduce the

* The witness subsequently confirmed that the London Naval Treaty, 1906 contains no provisions, equivalent to Article XVII of the Washington Treaty, forbidding any power the use of a vessel of war which may be under construction within its jurisdiction for any other power.

† See Q. 4719.

* See p. 667.

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[Continued.]

necessity, from the point of view of maintaining their efficiency, of the export trade? Now with regard to Woolwich, I suppose that the home orders are all placed out, are they not, and preference is given to Woolwich; Woolwich must have as much as it wants before there is anything else for anybody else; is that right?

Mr. Bovenachen: Well, may I say what the actual procedure is in normal times, if I may use the word "normal"?

4724. Chairman: Of course, I am speaking of normal times.

Mr. Bovenachen: When the estimates are framed for the following year a statement is drawn up showing how much is available, for both Woolwich and the trade, of work that is suitable for both Woolwich and the trade. I am excluding now work that is not suitable for Woolwich. A decision is then taken as to the strength at which Woolwich is to be maintained, and in consultation with the Admiralty and the Air Ministry, the War Office considers a provisional allocation of the orders between Woolwich and the trade. On the allocation committee are represented all interests. There is the Director of Ordnance Factories, who is there to look after the interests of the factories and to see that he gets enough to keep his nucleus, whatever that may be, employed. There is the Director of Army Contracts, whose job, I suppose, primarily is to look after the interests of the trade and to see that they are not denuded unduly of orders. When times are lean it is sometimes extremely difficult to find more than is enough for the factories. Of course, when times are better then there is a fair proportion that can go to the trade.

4725. Chairman: I was wondering whether it would be possible to decrease the amount of orders given to Woolwich and to put them on to some different kind of work so that there might be more wholly armament orders available for private firms, and so render it less necessary for them to export.

Mr. Bovenachen: You are really raising the question of alternative work for Woolwich?

4726. Chairman: Yes.

Mr. Bovenachen: I think the Director of Ordnance Factories can speak to that better than I can, but it has considerable political complications and I think there are some political, if no other, reasons against it.

4727. Chairman: One is faced with this objection to the export, and one wants to look all round the question and see whether there is any means of dealing with it.

Sir Reginald Townsend: The question of taking on alternative or civilian work has naturally cropped up, but it is a matter of high government policy as to whether we should compete with the normal peace trade for peace productions; and so far, apart from a short period after the War owing to labour conditions, it has been decided that we should not do so.

4728. Chairman: It has been suggested to us that there is a class of work that Woolwich might undertake which is not actively competitive with the trade. There were some articles mentioned—Post Office work, I think.

Sir Reginald Townsend: On that point, we were at a very low ebb some four or five years ago and the government departments were kind enough to send us their lists and we got all the information of the types of goods they required, including the Post Office, the Board of Trade, and so on, and we found that there was practically little or no work which was suitable for our particular task; a little Post Office woodwork and so on, but it only amounted to hundreds rather than thousands. We actually searched in that quarter in vain.

4729. Chairman: It has been considered, has it?

Sir Reginald Townsend: I personally went through it.

Mr. Bovenachen: It was considered as lately as 1930 by a committee under Sir Warren Fisher,

and the conclusion was: "The unsuitability of the Ordnance factories for alternative work is not due to inefficiency on their part but arises from their special circumstances and from their efficiency for their proper purpose." It was felt that they would not be so efficient for alternative work as they are for their ordinary work.

4730. Chairman: It is no good sacrificing Woolwich; you would do a great injury to the national defence policy if you started by injuring Woolwich. In your view it would injure Woolwich, would it, to try and take on any of that class of work?

Sir Reginald Townsend: Firstly, we could not find work within normal government departments which was suitable for us, apart from policy.

4731. Sir Thomas Allen: I see that in 1918 on the Committee of Inquiry into the Ordnance Factory at Woolwich, in the evidence given by Major-General The Hon. Sir F. R. Bingham, among other suggestions he made this one, that Woolwich should produce its own steel, and he would go so far as to apply this to 9-2 in. howitzer forgings and to this extent be self-contained.

Sir Reginald Townsend: On the point of steel, we would be such small users that the price would be almost prohibitive if we made ordinary commercial steel. As regards the 9-2 Ordnance, we actually do up to 9-2 forgings now.

4732. Sir Thomas Allen: Yes, but of course he suggested that with other suggestions he made in the direction that the work at Woolwich should be intensified. He said that some of the armament firms should be maintained, possibly by means of a subsidy, in a state of readiness to produce munitions immediately war was imminent, and that with the exception of one or two, the new national factories should be closed down and left dormant, their machinery being stored, and that the work should be largely concentrated at Woolwich.

Sir Reginald Townsend: Which point do you wish me to answer, Sir Thomas?

4733. Sir Thomas Allen: I am only referring to that evidence to show that in his opinion—he was a man of very great experience—there were possibilities at Woolwich of very large expansions in peace-time preparatory to emergency.

Sir Reginald Townsend: Well, on the question of steel we feel that the quantities we would make would make it prohibitive. On the other type of stores he mentions, we actually make those.

4734. Sir Thomas Allen: Perhaps it is better pointed out in this suggestion: "But Woolwich," says he, "must be the nucleus of the munition-producing capacity of the country and the parent of all factories making practically every type of gun and ammunition and component, and for which there must be a unit of production maintained constantly up-to-date. This was necessary not only to maintain a small reserve but to enable (a) experimental work to progress, and (b) foremen to be trained so that they could be sent out to factories throughout the country."

Sir Reginald Townsend: That, I hope, is our present position.

Chairman: That is a quotation from his evidence in the Mackinnon-Wood Inquiry, is it not?

Sir Thomas Allen: Yes. The evidence was given on 28th October, 1918. I am reading from "Minutes of the Engineering Sub-Committee of the Committee of Inquiry into the Royal Ordnance Factory, Woolwich."

Chairman: Yes, that is the Mackinnon-Wood Inquiry. Are there any other questions? If not, then we will pass from that to the next—contract procedure.

4735. Sir Philip Gibbs: I should just like to ask you, Sir Reginald, why no woman labour is employed at Woolwich?

Sir Reginald Townsend: Purely from a factory point of view, we would welcome it, but from

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[Continued.]

a government point of view in peace time we are instructed not to employ woman labour.

4736. *Sir Philip Gibbs*: Is that the policy of the government or your own decision?

Sir Reginald Townsend: It has been the general policy, possibly owing to labour conditions and so on, excepting on a certain small section of the work, fuse assembly, where the men's fingers are not delicate enough and we have a few women workers.

4737. *Sir Philip Gibbs*: Of course, that increases your costs?

Sir Reginald Townsend: Undoubtedly.

4738. *Dame Rachel Crowdy*: May I supplement *Sir Philip's* question and ask why the non-employment

of female labour is listed under "Advantages enjoyed by the factories"?

Sir Reginald Townsend: I was not aware that that was so.

4739. *Dame Rachel Crowdy*: You have got it under paragraph 7, "Advantages enjoyed by the factories: Female labour not employed."

Mr. Bovenchen: Is not that a disadvantage suffered by the factories? That is under the heading "Disadvantages."

Chairman: They do not get the advantage of lower wages. I suppose that is what it means.

Dame Rachel Crowdy: I apologise. I see now.

The following memoranda were submitted:

VI. CONTRACT PROCEDURE.

A. MEMORANDUM BY THE ADMIRALTY ON CONTRACTS FOR ARMAMENTS.

1. Fundamentally, the Admiralty policy in regard to armament contracts is the same as for other stores, i.e., the object is to obtain competitive tenders from British firms who have the equipment and experience necessary for satisfactory manufacture of the respective stores.

2. In practice this principle has to be modified as regards the principal armament items other than vessels of war, partly because the plant required is so expensive and special that (even before the War) there were few firms in this country capable of making the main items; partly also because the small scale of British armament purchases since the War has resulted in closing a considerable proportion of the few special plants which were previously available.

3. Thus there is only one firm (Vickers-Armstrongs, Ltd., with works at Barrow and Elswick) for non-transferable gun mountings, whilst very small numbers of firms are available for guns, armour-piercing shell and armour respectively.

4. Where effective competition is not available, prices are settled by negotiation, and the firms give any facilities which the Admiralty consider necessary to enable reasonable prices to be settled.

5. For some of these items, e.g., guns and transferable gun mountings, plant exists at Woolwich, but in war time Woolwich would be needed for War Office requirements to such an extent that it is doubtful how far it can be relied on for navy purposes.

6. Torpedoes are obtained partly from the sole trade manufacturers (Whitehead Torpedo Co., Ltd.), and partly from the Admiralty factory at Greenock; the necessary forgings, engines and other fittings are obtained for Greenock by competitive tender.

7. Cordite for naval requirements is made in the Royal Naval cordite factory at Helton Heath. So far as the Royal Dockyards are concerned, even though the hulls of some ships are built there and the machinery and other equipment installed, these establishments are primarily used for repairing the Fleet. Practically no armament stores are manufactured there.

B. MEMORANDUM BY THE WAR OFFICE ON CONTRACTS FOR ARMAMENTS.

1. Orders for armaments are placed by the War Office either with the Royal Ordnance Factories or with the trade.

2. The Royal Ordnance Factories which are administered by the Director of Ordnance Factories under the Master General of the Ordnance are situated at Woolwich, Enfield and Waltham; and a reserve filling factory at Hereford. At Woolwich are the gun and carriage factories, where guns, gun-mountings, carriages, tanks and tractors are made, and the ammunition and filling factories. Small arms and machine guns are manufactured at

8. Other stores (which require less specialised plant) such as mines, sinkers, etc., can be made by ordinary engineering firms and are bought by competitive tenders on the same lines as non-armament stores. A few items, e.g., rifles and small arm ammunition, are obtained from the War Office.

9. *Foreign Orders*.—British requirements being small, as indicated above, it is a help for the maintenance of plant (required in readiness for emergency expansion) if firms can obtain orders from foreign governments, thus providing employment in this country. It is very desirable that the skilled men necessary for the production of these highly specialised requirements should be kept employed, otherwise they would lose their skill, and the capacity for increasing output in emergency would be seriously affected. Such orders also help to absorb standing charges and thus tend to reduce prices for Admiralty requirements.

10. The Admiralty policy is, therefore, to encourage firms to obtain such orders. It is recognised that this to some extent places at the disposal of foreign governments the experience gained by British manufacturers, but the firms consult the Admiralty when in doubt as to the desirability of quoting to any particular specification.

11. *Sales of armament stores*.—Subject to the licensing arrangements for export of arms, the service departments are at present authorised to sell armaments other than vessels of war without restriction, unless in any particular instance the Secretary of State for Foreign Affairs deems the transaction to be undesirable. So far as vessels of war are concerned, their disposal as fighting units is forbidden by the Washington and London Naval Treaties, and they are only sold as such for demolition by recognised shipbreakers. Sales of armament stores by the Admiralty for further use have been few. (Certain armament stores such as gunbarrels and cartridge cases possessing only scrap value are disposed of to recognised firms for demolition, either at dockyard sales or by competitive tender.)

Enfield, and the explosives factory is at Waltham Abbey.

The policy is to place at least such portion of the Army's requirements each year with the Royal Ordnance Factories as will maintain a nucleus establishment capable of rapid expansion in emergency.

3. The Royal Ordnance Factories are equipped for the manufacture of practically all kinds of armament, but obtain certain semi-manufactured materials such as steel billets, and certain components such as bullet-proof plate for tanks, from the trade.

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4. For orders placed with the trade, in principle the same contract procedure is observed as in the purchase of other stores required by the Army.

Purchasing (except for comparatively small local purchases) is centralised at the War Office, and contracts are placed by the Director of Army Contracts under the Financial Secretary. This applies both to raw and other material required by the Ordnance Factories for all services, and to finished articles taken direct into Army stores. So far as possible competitive tenders are obtained and the lowest suitable offer is accepted. But this method is not so readily applicable to munitions as to most other types of stores. Even before the War there were comparatively few firms producing munitions in their finished form, and the small demand for armament stores since the War resulted in the closing down of a proportion of these sources of supply. Moreover, the existence of proprietary designs or the necessity for keeping open such sources of supply as there are in order to maintain emergency productive capacity restricts the application of the competitive method. But in cases where effective competition is not available the department has usually no difficulty in obtaining prices which they are satisfied are fair and reasonable.

5. The number of firms from whom the main categories of armament stores are obtained in their finished state has until recently been comparatively

few. Vickers-Armstrongs manufacture guns, gun carriages and mountings, tanks and tractors, machine guns and gun ammunition. Apart from this firm there is, broadly speaking, no private firm engaged on the production of a wide variety of armament stores. But there has always been a limited number of firms which tender for contracts for shell and for small arm ammunition, and of necessity endeavours were being made, with a view to increasing capacity on emergency, even before the recent government decision to make good deficiencies in the defence forces, to place orders for the peace-time production of certain stores such as tanks and shell with firms which had hitherto not been engaged in peace in the manufacture of finished armament stores.

6. But though as indicated in paragraph 5 the range of firms manufacturing finished armament stores is limited, there is a considerably larger number of firms which contribute to the finished product, either by way of sub-contracting for parts or of providing essential accessories. The forgings for shell are not necessarily made by the manufacturer responsible for the later processes: tanks require engines, gear boxes, tracks—which may not be made by the main manufacturer; and as regards accessories, wireless for tanks, ammunition hoists for gun-mountings and various optical instruments may be mentioned as articles obtained from commercial firms which cannot in any way be classified as armament manufacturers.

C. MEMORANDUM BY THE AIR MINISTRY ON CONTRACTS FOR AIRCRAFT, AERO ENGINES AND ARMAMENTS.

(1) Aeroplanes.

(a) The Air Ministry has no aeroplane design establishment of its own and all designs of aeroplanes for the Department are produced by some fifteen aeroplane firms under the guidance of the Director of Technical Development. The firms are required to maintain an adequate design staff and their production, equipment and inspection arrangements are approved by the Director of Aeronautical Inspection.

(b) Experimental aeroplanes are designed to meet the requirements of the Air Staff which are embodied in a specification issued to all firms by the Director of Technical Development.

The designs and quotations received from the firms are considered by the Air Member for Research and Development, who selects the designs to be ordered. The specification requires the aeroplane designer to use a British type of aero-engine for his design. The engine is separately purchased by the Department and issued to the aeroplane firm on "contract loan". The specification is secret and is held for the sole use of the recipient and its use for any purpose other than Air Ministry work is prohibited. No information of experimental aeroplanes may be published or given to likely foreign purchasers without the permission of the Air Ministry.

Firms receiving contracts for experimental aeroplanes are required to satisfy the Department that the arrangements at their works are adequate to safeguard the secrecy of the experimental aeroplanes under construction.

Experimental aeroplanes to meet the Department's specifications are sometimes made by firms as "private ventures". In agreeing to accept for test the private venture aeroplane when produced the Department imposes the same secrecy requirements as are applicable to contract built aeroplanes.

(c) The experimental aeroplanes produced under contracts and any private venture aeroplanes are subjected to competitive trials by Service pilots at experimental stations. A choice from the competing types is made on the results of the trials. It is found impossible to maintain secrecy as to the existence and general particulars of the aeroplanes at this stage and the firms are permitted, if they so desire for publicity purposes, to disclose to likely purchasers general particulars of the aeroplane but are required to withhold particulars of the performance.

(d) As the result of these trials the Chief of the Air Staff selects the type of aeroplane to be adopted for service. At this stage the firm is released from its obligation to maintain the design secret. The Department may, however, require a further period of time to elapse before the aeroplane design is licensed for construction abroad.

(e) The aeroplane design chosen for adoption as a service type is in general manufactured only by the parent firm, but the Department has the right, subject to certain limitations, to have aeroplanes to the design manufactured by other firms.

(f) The basis of the Air Ministry policy of securing the progress in aircraft design which is essential for the efficiency of the Service is competition between private firms at the design stage with substantial orders as the prize of success. The reasons for this policy will be developed in oral evidence if desired.

(2) Engines.

The designs of aero-engines are evolved by four aero-engine firms to the requirements of the Director of Technical Development, and engines which are adopted for use in aeroplane types are purchased by single tender from the designing firm.

The requirements for secrecy are similar to those applicable to aeroplanes although the stage of development and use at which publication of particulars is permitted may be delayed further in the case of engines than in the case of aeroplanes.

(3) Armament.

The special types of armament stores used by the Royal Air Force consist chiefly of machine guns and bombs. Other types of stores such as rifles, ammunition and torpedoes which are common to the other Services are obtained from the War Office or Admiralty. The Air Ministry has no separate design establishment for designing armament stores and use is made of the Ordnance Factories for producing designs of bombs and fuses. Contracts for the supply of these stores are made after competitive tendering to drawings produced by the Ordnance Factories. A prohibition of the use of the drawings for other than Air Ministry contracts is contained in the contract.

Machine guns are obtained either from the Ordnance Factories or from the commercial firms which have developed them.

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4740. *Chairman*: The experience of the Admiralty, of course, has been that for a long time you have been putting out a very large portion of the required work to private firms, and you have found that you have been able to check the prices and obtain what you believed to be satisfactory prices.

Sir Reginald Henderson: Yes.

4741. *Chairman*: And that is the experience of a long number of years?

Sir Reginald Henderson: Years and years.

4742. *Chairman*: I mean, it is not a question of whether you can check them under present conditions, but your experience is experience gained over a number of years?

Sir Reginald Henderson: Yes, and we have the Ordnance Factory to check by as well, and our dockyard practice.

4743. *Chairman*: And here there is no doubt about the position, because in paragraph 10 of Memorandum A it says: "The Admiralty policy is, therefore, to encourage firms to obtain such orders," that is, foreign orders. I mean, there is no doubt about it; that is the policy.

Sir Reginald Henderson: That is the policy.

4744. *Chairman*: And that you believe to be essential?

Sir Reginald Henderson: Essential.

4745. *Chairman*: And I understand that to be true of all the departments that are here?

Sir Hugh Ellis: Especially in the lean years.

Chairman: I am speaking now about normal times, not exceptional times. I have no other question.

4746. *Dame Rachel Crawdy*: I would like very much to ask a question in connection with category 5 of the agreements you have with outside bodies. Have you got that supplementary list? Can we have some short history of the agreement reached with the Solay Armament Company? I see you have got two agreements, one entered into on 18th August, 1931, for the purchase and re-sale of steel helmets, and another one on 12th October, 1931, sole right to purchase and re-sell surplus Hotchkiss guns, and in both cases you have got what I would like explained to me, a technical term, "subject to safeguards." Well, we heard Captain John Ball giving evidence here before the Commissioners, and I think some of us were not completely satisfied with the type of evidence that he gave before a Royal Commission. Some of us rather regretted the way in which our second-hand arms seemed to be getting into the various countries of the world, and I personally for one should like very much to know the root of Captain Ball's agreement.

Mr. Borenschen: I am very much obliged to you for asking the question. If I may do so, I should like to take a little time on this, and I would like to take it on rather wider grounds to start with than on the two agreements, but to deal with the two agreements later to whatever extent you wish.

4747. *Chairman*: May I interrupt for one moment, because was not there an agreement with the Birmingham Small Arms Company that they passed on to Captain Ball?

Mr. Borenschen: I will deal with all those, if I may.

4748. *Dame Rachel Crawdy*: If you would,

Mr. Borenschen: There is just one point, Dame Rachel. I think the steel helmet agreement is really probably not one of this category at all. Steel helmets are hardly armaments. I can deal with that if you like but it is rather unimportant, and if you wish further information on it I will give it to you.

4749. *Dame Rachel Crawdy*: No, I merely mentioned that because it was the first.

Mr. Borenschen: Well, in the first place if I may I should like to make a short general statement about the disposal of all surplus stores by the War

Office, all old and surplus stores, and the disposal of surplus armament stores in particular. I think that there is some danger of the question getting rather out of perspective from the point of view of the amount of importance which the sale of surplus stores occupies in the Contracts Department.

The War Office Contracts Branch is charged, in addition to its buying duties, with the task of disposing of surplus stores of various kinds. Such stores include very diverse articles—old clothes, tents, trophies, huts, and surplus and obsolete arms and ammunition. The total receipts in a year of course vary; but from the years 1931 to 1934 the average receipts for the sales of all surplus stores, of all categories, had averaged about £114,000 a year, which is more than the cost of a battalion of infantry; but though the receipts are quite appreciable and though disposal questions are very often tiresome and difficult questions—and that is especially true of the disposal of surplus armament stores—the disposal of stores is not a main or a predominant function of the Contracts Department. The whole-time staff engaged on the work is four only, with part-time supervision, whereas the contract staff as a whole—it is increasing now and my figures may be out of date—is certainly over 150, and the disposal of surplus armament stores is only a portion of the work of the disposal section. I have spoken at length on that.

4750. *Sir Philip Gibbs*: I presume these figures would have been very much greater for, we will say, the five years after the War.

Mr. Borenschen: The Disposal Board—not the Army Contracts Department—were in charge of the disposal of surplus stores for a certain number of years after the War. I am afraid I cannot tell you that; but these, again, I should say, are normal figures.

4751. *Sir Thomas Allen*: Captain John Ball did say to the manager of his American agency, "The war stocks which we control are of such magnitude that the sale of a big block of them would alter the political balance of the smaller states."

Mr. Borenschen: I am not quite sure what relevance that has to the point I am making at present. In the first place, I do not know what stores Captain Ball alleges he controls. In the next place, those stores have not, in fact, been sold, and, in the third place, they can only be sold with the complete concurrence of the departments concerned and with adequate safeguards.

As regards the disposal of surplus armament stores, that, of course, is governed by government policy. That is not a question that is decided by a department alone. That policy has varied from time to time during the past 10 years, but it has always been largely influenced by a desire to prevent armaments, accumulated as a result of the War, from falling into improper hands. In April, 1924, it was decided that the disposal of government-owned armaments and munitions of war to foreign states, whether directly or through private contractors, should not in future be sanctioned, and that, as a corollary to this decision, such surplus stocks as had not been or could not be made use of by the service department, or disposed of to the Dominions or Colonies, should be destroyed. That decision was reversed in February, 1925, but again in 1929 it was laid down for a short time that no government-owned arms or munitions of war should be sold to foreign states, whether directly or through private contractors. The position was again reviewed in 1930 when, having regard to the fact that the previous policy had failed to prevent or limit purchases of war material by foreign countries but had in fact tended to stimulate their armament trade to the detriment of this country, it was decided (a) to cancel the previous decision which prohibited the disposal of government-owned arms and munitions of war to foreign states, either directly or through private contractors who are recognised dealers; (b) that in future such sales might be sanctioned by the three service departments unless in any particular

* Not printed.

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[Continued.]

instance the Foreign Office deemed the transaction to be undesirable. It is under this decision that the government departments work to-day. (The War Office, I think, is really the departments mainly concerned.)

From time to time, sales to particular destinations are refused for political reasons. Those reasons are not always confined to occasions when there is a general embargo on the export of arms. Even when it is considered that the private trade may properly export arms, occasions arise when the government says that surplus government stores shall not be exported. Thus the restriction on the export and sale of surplus government stores is stricter than the restriction on the ordinary trade.

In disposing of surplus arms, therefore, the service departments have to keep a dual object in view, the necessity of preventing such arms from falling into improper hands and the desirability of reaping to the fullest extent such advantages as there are in the sale of surplus stores. As regards the former point, as the Commission is no doubt aware, the only stocks of "second-hand" military weapons in this country are government surplus stocks mainly, I think, army stocks. Effective control of those stocks is maintained not only by means of the licensing system, on which the Commission have already had evidence, but when necessary by contractual safeguards. When I come to the two individual cases that you have asked me to deal with, I shall be happy to deal more fully with that point. As regards the latter point, if I may anticipate a question which I believe Professor Gutteridge is going to put to me later as to the advantages which are alleged to accrue from the sale of surplus stores, the advantages are partly military and partly financial. On the military side, we prefer to see foreign countries armed with British pattern equipment rather than with equipment derived from foreign countries. I think Sir Maurice Hankey, in his evidence, made that point.

4738. *Chairman*: We have not heard anything about it yet, have we?

Professor Gutteridge: In other words, we should know what they were equipped with, we should know what ammunition they had, because they would have to buy ammunition from us.

Mr. Beveridge: Yes. I think he dealt with the position of Turkey at the beginning of the War. 4739. *Professor Gutteridge*: In other words, if the "Ruritarians" have our rifles, they will have to get the ammunition from us.

Mr. Beveridge: That is on the military side. On the financial side there is not only the advantage to the taxpayer from direct receipts, but there is the fact that the buyer will probably come to this country for such things as spare parts and ammunition; and if it be admitted that private trade should be encouraged, that is an argument in favour of the sale of those arms. Cases may also arise in which the supply of government stock components to a manufacturer may enable him to deal speedily and even cheaply with an order he would otherwise lose for lack of the particular components which he might have to manufacture or buy.

If I may now go on to the methods of sale employed by the various departments: The kinds and quantities of warlike stores to be disposed of have varied in the three service departments and the methods of sale adopted by those departments have to some extent been conditioned by this fact. In some cases sales have been effected by direct negotiations with foreign governments; in others, specific quantities of stores have been sold to dealers for re-sale or, as, for example, in the case of ammunition for testing purposes, to firms for use in connection with their own manufactures; while in two or three cases the War Office, which has probably had the largest and most varied stocks of surplus stores for disposal, has made agreements giving individual firms the sole right of purchase and re-sale of particular stocks over a period of time. In

most cases the initiative has come from the would-be purchaser, though in a few cases tenders have been invited from representatives of foreign governments in this country and from commercial firms likely to be interested. But the purchaser is always required to obtain an export licence, and to inform the department as to the destination of the stores, whether sent in their whole state or used in the manufacture of other stores.

May I speak of the routine of my own department in this matter? If somebody came to us and asked us to sell armament stores for export abroad, we should first consult the General Staff, to see whether there was any objection at all. If there were no objection at all, the would-be purchaser would go to the Board of Trade and get an export licence. When the export licence had been produced, we should then release the stores. But, although it is not primarily a contract matter, we do not stop there. The export licence in normal cases states the ship by which the cargo is to travel and in our own contracts we practically invariably lay down that the ship shall be a British ship. We check up from the lists which we have made arrangements to receive, in order to ascertain whether, in point of fact, the stores went by that particular ship. So far as the Contracts Department is concerned, we do all that we can to see that the actual machinery works effectively.

The two continuing agreements for the sales of surplus armament stores (Hotchkiss guns and rifles and Lewis guns)—perhaps it would be convenient to you if I took both those cases, although only the Hotchkiss gun is directly a contract with John Bull—are: an agreement with the B.S.A. Company for which they have appointed the Sole Armament Company their representative; and an agreement with the Sole Armament Company relating to Hotchkiss guns. If it is convenient to you, I will take both those cases. These two agreements have certain special features, but in essence they do not differ from the other sales of armaments stores. They are contracts giving an option to the prospective buyer which he can exercise when he chooses. They have always, so far as I am aware, been regarded as contracts of sale and not of agency. I make that point because, when I read the evidence to which you were referring, I thought that it was quite possible, throughout the evidence, that the Commission might be under certain misapprehensions as a result of it, which I should be sorry that they should be under. So far as I am aware, these contracts have been administered as contracts of sale and not of agency. I believe that the line between contracts of sale and agency in their practical working is sometimes rather obscured. I speak, Sir, with all due deference to you, as to whether they were contracts of sale or contracts of agency.

4754. *Chairman*: I have not seen them.

Mr. Beveridge: They have always been administered as contracts of sale and not agency contracts.

The circumstances in which the contracts were placed were these. In the case of the Hotchkiss gun, the question of the disposal of Hotchkiss guns was under consideration in 1929, I think, and there was a question whether they should be scrapped or not. The opportunity for disposal of Hotchkiss guns was not regarded as being very likely, but there were two offers. The Sole Armament Company offered us a payment representing the cost of storage of these guns, if we would give them the sole right of purchase and re-sale. At the same time the B.S.A. Company asked us whether we would include it in the B.S.A. agreement, to which I shall refer later. We came to the conclusion that the Sole Armament Company's offer was the better, because we got cash down, to a certain extent. The offer was accepted, subject to conditions to safeguard the guns from falling into improper hands and to the department's rights to supply Dominion and Colonial governments.

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Perhaps at this stage, if I am not taking up too much of the Commission's time, I might read the clauses in the contract which were inserted to safeguard the State.

"In any dealings with the goods the Company shall strictly observe all government regulations for the time being in force relating to dealings in or work carried out in connection with any stores of the same nature or type as the goods, and this agreement shall be subject also to the following conditions—

(a) All resales shall be made for export only and the company whether they are the actual exporters or whether the export is arranged through an intermediary, shall be responsible for seeing that all the provisions herein contained shall be strictly observed and shall immediately inform the Secretary of State for War in writing of the name of any intermediary who is to be engaged in the exporting of any or all of the goods.

(b) The goods shall on export be carried only in British ships direct to the port of destination.

(c) When in accordance with the regulations for the time being in force application for export licences for the goods or any of them is made, the Company shall at the same time send a copy of such application to the Director of Military Intelligence at the War Office and to the Home Office.

The Secretary of State may, by notice in writing to the Company, reasonably prohibit or restrict or impose such reasonable conditions as he may think fit upon resales of any of the goods to any person, persons, firm, corporation or government, or class or description of person, persons, firm, corporation or government and the Company shall comply with any such prohibitions, restrictions or conditions."

That I have read from the B.S.A. agreement and there are similar clauses in the Hotchkiss agreement. I think they are textually the same, but if you would not mind, I will only read from the one contract.

The original agreement was for two years—I am referring to the Hotchkiss agreement—but no sales were effected. This, the company claim, was largely due to embargoes on sales and the department has always felt that that grievance of the company has, to some extent, been justified. Accordingly, the agreement has been extended twice, but as it is not considered desirable to extend it indefinitely, the company were notified that the last extension, which ends in June of this year, is the final one.

4755. *Dame Rachel Crossley*: For how long is that extension?

Mr. Bowerschen: It ends in June of this year. As regard the rifle agreement with the B.S.A. Company, this had in view a dual object, the retention of certain B.S.A. plant and the sale of the rifles. The company had complained for some years of the lack of orders and had represented that they could not be expected to retain plant without orders. As the department had already large stocks of rifles and was not in a position at the time to place orders the sole right of purchase and resale of the surplus stocks of the 1914 pattern rifle was conceded to the company as consideration for retention of plant. Here too the safeguards which I have just read out were inserted in the contract. Apart from the retention of the company's plant, there were certain definite administrative advantages in dealing with one buyer. We have found in the Contracts Department that all sorts of people come and make offers, or make inquiries and so on, and there is a definite advantage in having those diverted into one channel.

The company appointed the Sole Armament Company to act as their representative for the sale of the rifles. I think I can say here that, in doing so, they did not ask for our approval—we were advised, as a matter of fact, that there was no

necessity for them to do so, under the terms of the contract—but I think it is quite right and fair to say that, had they asked our approval, we certainly should not have withheld it.

Perhaps I had better deal with the objections which have already been raised in other quarters to this agreement. I should like the Commission to be in full possession of all the facts and the implications. I would say straight away that the agreement was admittedly not free from theoretical objection. On the one hand it might be expected that a company manufacturing rifles would rather sell its own manufactures than buy and re-sell surplus stocks, and I think it was with that object that the company appointed a special representative to deal with that side of the business. On the other hand, the retention of plant does not secure the retention of skilled personnel. That is an obvious weakness. But from the department's point of view, the retention of plant was most important and this was secured, and on balance it was thought that the agreement was certainly worth while and served its purpose. In view, however, of these theoretical objections, notice was given to terminate the agreement at the first opportunity, which occurred with effect from August, 1935, but, in view of the necessity of retaining the company's plant, it was continued from month to month. As, however, there was a definite increase in the amount of work available for B.S.A., it was ultimately decided to be unnecessary to continue the agreement and notice was therefore given to the company that the agreement would be finally terminated, and that too takes effect from June of this year.

There is only one other point that perhaps I might be allowed to deal with, in anticipation of questions in connection with the B.S.A. agreement. On reading the evidence that was given by the Sole Armament Company, I felt that the Commission might possibly have drawn the conclusion that, under this agreement, large quantities of these rifles were allowed to be sent to Liège without any control over their ultimate destination. The facts are that 1,000 of these rifles only have been allowed to be sent to Liège, with a definite stipulation that they were not to be sent on without the concurrence of the Board of Trade. To the best of my knowledge, over 900 of these rifles are still at Liège. The balance have either been destroyed in conversion for experimental purposes and so on, or have been sent abroad as samples. The balance we have had checked independently by a Belgian official of Liège. That is really all I have to say on those points. If I have not covered the ground fully, I shall be very happy to do my best to answer questions.

4756. *Dame Rachel Crossley*: In fact, the Sole Armament Company are out of commission altogether, as far as the British government are concerned, from June onwards?

Mr. Bowerschen: This particular agreement ceases from June onwards, but that does not mean that the War Office will not sell any surplus armament stores to the Sole Armament Company if it were considered desirable to do so.

4757. *Dame Rachel Crossley*: It will not have the sole monopoly under the agreement.

Mr. Bowerschen: This particular contract will expire quite definitely.

4758. *Dame Rachel Crossley*: And will another one be made?

Mr. Bowerschen: The present intention is no. The decision was that the time had come to close down. There were no sales under the Hotchkiss gun agreement at all up to the end of last year. I believe there have been a few since, but I am not sure.

4759. *Mr. Spender*: The Sole Armament Company is the successor to another company?

Mr. Bowerschen: The Sole Armament Company is the successor to H. Soley and Company, which had dealings with, I think, the Disposals

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Board, and had dealings with the War Office from 1924 onwards and in 1927 it became the Sole Armament Company, which is now entirely Captain John Ball.

4700. *Dame Rachel Crowdy*: Did you hear Captain Ball's evidence before the Commission?

Mr. Bovenchen: No, I did not.

4761. *Dame Rachel Crowdy*: Did you read it?

Mr. Bovenchen: Yes.

4762. *Dame Rachel Crowdy*: Do you feel that he is a suitable person even to be considered by ourselves as a selling agent and purchaser, having the sole monopoly right to purchase from the British government?

Mr. Bovenchen: You have already agreed that the term "agent" is not applicable, and my answer is that I know of no reason why the Sole Armament Company should not be allowed, under safeguard, to purchase stores from us.

4763. *Sir Kenneth Lee*: Have you ever seen his files?

Mr. Bovenchen: No, I have never seen his files, but my cost accountants have examined the accounts that he had to keep under the steel helmet contract.

4764. *Sir Kenneth Lee*: Have you seen the type of correspondence that he wrote to his customers?

Mr. Bovenchen: I have seen Captain Ball and I have had correspondence as Director of Army Contracts with Captain Ball, and I should say that his style of correspondence is somewhat outside the conventional.

Sir Walter Jenkins: We have had only one transaction with the Sole Armament Company. That was in 1931 and it was for a few six-pounder guns which were going to the Chinese government.

4765. *Dame Rachel Crowdy*: The Chinese government or the Japanese?

Sir Walter Jenkins: The Chinese.

Mr. Bovenchen: I do not want you to think that those were the only sales we made. We made other sales.

4766. *Sir Thomas Allen*: It would help us if we could get to know what sales he did make, because he said, in writing to his American agents, "I have available 1,000,000 rifles, 100,000,000 rounds of ammunition, 34,000 Hotchkiss machine guns, 20,000 Lewis machine guns, 8,000 Lewis aero machine guns, 15,000 Vickers Maxim guns and 15,000 revolvers". You said that 1,000 rifles were sent to Liège, of which 900 remained unsold. But he also left the impression—at least upon my mind—in giving his evidence, that those machine guns were scattered fairly freely throughout Europe?

Mr. Bovenchen: If machine guns are scattered throughout Europe, that has nothing to do with the sales of surplus stores of the War Office. Those stores, if they exist, are not War Office stocks. They are not controlled by the War Office and they could not be controlled by the War Office. I do hope I have made it plain to the Commission that we keep a very strict control over those stocks that we do control. I hope if I have not made it plain the members will cross-examine me.

4767. *Professor Gutteridge*: I am sorry to say so, but your statement of the advantages attaching to these transactions has left me quite cold. What particular gain is this trade to us? Should we be very much worse off if we broke off dealing with all these Lee-Enfield rifles and machine guns and so forth?

Mr. Bovenchen: There is a certain financial gain. If the argument as regards the sale of manufactured rifles is valid—that is to say, that it is a good thing that people should buy from us rather than from foreign countries—it seems to me the argument is also valid here; because if we do not sell our surplus stores, other countries can sell their surplus stores.

4768. *Professor Gutteridge*: Do you not think the peddling about of these—I will not say tinpot, but more or less worn out rifles—will prevent people coming to this country and buying new ones? Would it not be very much better if those people came and bought new weapons from the B.S.A. Company rather than that our government should peddle these worn out rifles?

Mr. Bovenchen: If they bought new rifles, I should be inclined to agree—that is my personal opinion—but if, in place of those, they went to "Ruritania"—which I think was your supposed country—and bought second-hand stocks from "Ruritania", we should be worse off. Again, if there were universality, there would be a very much stronger case.*

4769. *Professor Gutteridge*: We are dealing with tens of thousands. We are in a different realm from foreign trade in general. I should have thought the risks which the government runs from weapons getting into improper hands infinitely outbalanced any niggardly profit that might accrue from the sale of these stores.

Mr. Bovenchen: These stores, as far as we are aware, do not get into improper hands. Contractually, we have our sources of information to see that the contract is properly carried out.

4770. *Professor Gutteridge*: What I have in mind is this. You start a trade in these second-hand weapons. In some countries, at all events, rifles are something like currency, are they not? They pass from hand to hand. I have in my mind a vision of streams of second-hand rifles going across Europe and finishing up in, say, Afghanistan, where they might be used against this country?

Mr. Bovenchen: This also answers Sir Thomas Allen. The total sales under the B.S.A. agreement—I have not the exact figure—are between £25,000 and £30,000, for the whole period of the agreement. I think that may possibly allay some of the fears that you have.

4771. *Sir Thomas Allen*: It seems an enormous quantity for a man to have at his disposal to be let loose.

Mr. Bovenchen: But so far as the British government stocks are concerned, to say that he has them at his disposal is only half the answer. He has them at his disposal subject to the safeguards I have read out.

4772. *Mr. Spender*: He gave us to understand that there was a very large trade in British rifles. He certainly used grandiose language about it. It did not come under your control, but he obtained British rifles from different parts of Europe.

Sir Hugh Miles: They had obviously been supplied to the Allies during the War and he had bought them.

4773. *Mr. Spender*: He said he had a reconditioning factory in Liège and it appeared that he brought them all there, British and other rifles. But you say the British were only 1,000.

Mr. Bovenchen: I did not say the British were only 1,000. I said the rifles that we had allowed to go out from our stocks to Liège were 1,000.

4774. *Mr. Spender*: But the main difficulty in our minds was this: It seemed to be very unfortunate that this man should be peddling these British rifles, whether they came from you or from anybody else. I am thinking of the appearance that he and his company made before the American Inquiry. Have you no possible means of controlling the passing of rifles to a man of that kind? Your contract contained stipulations?

Mr. Bovenchen: In that particular case, as a matter of fact, we were advised, that as the terms of the contract were drawn, we could not object to his being used as a representative, but I think I should state quite definitely that had we been asked at the time we should not have refused.

4775. *Mr. Spender*: If you had read the proceedings of the American Inquiry you would not still have said that, would you?

Mr. Bovenchen: I can only say, with regard to that, that if the Commission were to find that any firms were not suitable for the holding of government contracts that, of course, would be a matter that would be seriously considered by the Army.

* The witness subsequently stated that the rifles are first-class rifles in good condition. They differ from the pattern in use in the Army, but the decision to sell them was taken on the ground, not that they were obsolete, but that they were surplus to requirements. Rifles sold from these stocks were used with marked success last year at Bisley.

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Council. I do not think you can fairly press me to say anything more than that.

Dame Rachel Crawdy: As a person who travels a great deal, I should think it must be very bad for the prestige of Britain for a person like Captain John Ball to be looked upon as the sole seller of British rifles. It cannot do our prestige any good.

Chairman: Do you not think we have exhausted the subject?

Dame Rachel Crawdy: Yes, I think we have.

4776. Professor Gutteridge: I should like to say this: I was not objecting so much to the personality of Captain John Ball; but what I am thinking is this, that this is really the rag and bone trade and it is undignified for this country to engage in it. It is all right when you deal with tentage—in fact I have myself sold second-hand tentage—but with regard to arms it is running the risk of bringing our good name into disrepute, and it is not worth it.

Mr. Bovenchen: We are bound to carry out departmentally whatever government decisions there may be.

4777. Chairman: They were very vacillating; sometimes they blew hot and sometimes they blew cold. However, I do not want to go into that.

Mr. Bovenchen: I think it is only fair to make that point, that we work under government decisions.

4778. Chairman: It has not the redeeming feature, if it is a redeeming feature, that it helps to keep the armament firms efficient. I cannot see any virtue in selling these arms. That is the conclusion to which I have come. You follow the instructions and do your best to keep the purchasers in order, but it is not a very satisfactory state of affairs, to my mind.

Sir Walter Jenkins: I think you might make a distinction. For instance, a small power—"Ruritania"—may be one of our oldest allies—fear an invasion and come either to us or to one of our armament manufacturers and say "Can you supply us with mines? We want to lay some offshore." The armament manufacturers reply "Yes, we can but it will take some months." They want them at once and go to the Admiralty and ask "Have you any old mines?" Naturally, we would take into consideration the fact that the request came from an old ally and we would be inclined to let them go. I only mention that as a case where a distinction might be made.

Professor Gutteridge: There might be cases of that kind; and, of course, it is harmless to sell steel helmets as coal scuttles; I do not want to be too sweeping; but it does seem to me that the peddling of small arms is objectionable.

4779. Sir Thomas Allen: Do you know whether any of those rifles were sold in Italy by Captain Ball?

Professor Gutteridge: 30,000, were there not?

Mr. Bovenchen: None of those that we have stored have been sold in Italy. Is that your question?

Sir Thomas Allen: That is my question.

4780. Dame Rachel Crawdy: Did we not store them at the end of the War?

Mr. Bovenchen: I thought Sir Thomas was referring to this agreement.

(At this stage of the proceedings the Chairman retired and his place was taken by Professor Gutteridge.)

4781. Professor Gutteridge: Does that conclude No. VI?

Sir Walter Jenkins: Might I add a statement to the Admiralty memorandum? Dr. Addison in his evidence claimed that the Ministry of Munitions supplied all the armaments in the Great War. Then you, Sir, put a question to him about warship building and his reply was that the Ministry of Munitions supplied the materials. I do not want the Commission to be under any misconception as a result of that reply. May I say that during the last war the Admiralty made all its own contracts for armaments and munitions and relied absolutely

on the private trader. Except for some big guns for ships, Woolwich at the commencement of the War was cut off and we were thrown on the resources of private trade. All those guns, fuses, shells, with the exception of rifles, small arms and so on, that we obtained from the War Office in peace time were bought from the trade.

4782. Professor Gutteridge: You had priority, of course, had you not?

Sir Walter Jenkins: Yes, we had priority within reason.

4783. Professor Gutteridge: That is Memorandum A under No. VI; "Memorandum by the Admiralty on contracts for armaments." Would you like to add to B—"Memorandum by the War Office on contracts for armaments"—or may we take it as it stands?

Sir Hugh Elles: I have nothing to add.

4784. Professor Gutteridge: C—"Memorandum by the Air Ministry on contracts for aircraft, aero engines and armaments." Do you wish to add anything?

Sir Hugh Dowding: No, Sir; unless you are interested to know the Air Ministry's attitude towards this question of the disposal of obsolete aircraft, as it has come up rather strongly in the other case.

4785. Sir Thomas Allen: You say in paragraph (f) "The reasons for this policy will be developed in oral evidence if desired." Will you deal with that?

Sir Hugh Dowding: Yes, I will; certainly.

4786. Professor Gutteridge: I think we should like you to deal with disposals as well.

Sir Hugh Dowding: Yes; let us start with disposal, because the subject is fresh in our minds. As a general rule we do not sell obsolete aircraft and engines for anything except scrap. We consider, in the first place, that it is undesirable to enter into competition with our firms who have new goods for sale. In the second place, we are disposing normally of these aircraft because they are no longer airworthy, and therefore we are reluctant to see them get into other people's hands where accidents may occur. In spite of the fact that we definitely disclaim airworthiness for these aircraft there might nevertheless be a certain stigma attaching to British design and workmanship; therefore our normal policy is not to sell obsolete or obsolescent aircraft and engines other than at scrap prices for breaking-up purposes.

4787. Sir Thomas Allen: Breaking up where—in this country?

Sir Hugh Dowding: Yes, in this country. The prices which are obtained are really almost derisory. I think we get £5 for an aero engine.

Mr. Holloway: £5 would be quite a large sum.

4788. Professor Gutteridge: It would be an advantage to get rid of it?

Sir Hugh Dowding: Yes. We remove the instruments and we sell the engine and the aeroplane separately. There is no absolute stipulation that they are to be broken up but they are sold at scrap prices and are normally scrapped. At the same time we should be reluctant to make it a binding rule, that in no case might we dispose of obsolete or obsolescent aircraft otherwise than for breaking up; because cases might arise where the Dominions or Colonies, or countries such as Egypt or Iraq, which are attached to us by political ties, might wish for some relaxation of that rule and we should not like to be in a position where we could not even discuss the question. During the last five years or so that I have been at the Air Ministry there has not been, within my recollection, any instance where we have actually sold obsolescent machines in a serviceable condition for export from this country, but the question has been under consideration on more than one occasion and we should, perhaps, have been ready to stretch a point if the purchasers had pressed us to do so.

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4789. *Professor Gutteridge*: In other words, you think there may be overriding circumstances?

Sir Hugh Dowding: Yes. Does that cover the question about the Air Ministry attitude?

Sir Thomas Allen: Yes.

4790. *Professor Gutteridge*: Now the other question.

Sir Hugh Dowding: The other question is, of course, a very much bigger one. I am rather glad that it has been raised, because on reading these papers I do not feel that there is down in black and white quite clearly enough the very definite attitude of the Air Ministry on this subject. The Air Ministry is definitely against either the partial or entire construction of an aeroplane or engine in government factories.

4791. *Sir Thomas Allen*: Did you say "definitely against"?

Sir Hugh Dowding: Definitely against, yes. The reason for that is, that we believe that the greatest efficiency in this art, which is still making the most rapid strides and which is a comparatively youthful one, can only be obtained by the strongest possible competition in design between the best brains in the country stimulated by suitable conditions. I do not want to take up too much time in making a speech, but I would rather make a short statement and then subject myself to cross-examination. It may be said: competition is good, but why not have a government factory to compete against outside private factories? My answer to that would be that whoever is sitting in the chair which I lately occupied at the Air Ministry will always receive, and must always receive, from his staff the advice that the official government design is the best, and therefore in normal times, when there is not enough to go round, the government design will always be the one which is accepted, and the private design will be rejected, and in course of time outside firms will cease to compete in such a one-sided field. Manufacture from government design is, of course, no new idea, and it did obtain during the War at Farnborough, which used to be the Royal Aircraft Factory. In my opinion and in that of many others the system was not a success, and at the end of the War the Royal Aircraft Factory ceased to be a factory and its activities were diverted into what I consider to be much more useful channels.

4792. *Sir Philip Gibbs*: Research?

Sir Hugh Dowding: Research, testing materials, airworthiness, questions which are of extreme complexity and on which even to-day we do not care to be dogmatic; a great deal of work on instruments and wireless and so on. In that limited respect they are still a government designing establishment, and I would be the first to pay my tribute to the excellent work which they have done in that field. I do not think I want to say anything more now but I shall be very pleased to answer questions.

4793. *Professor Gutteridge*: There is one question that I should rather like to put to you on this last statement of yours. Mr. McKinnon Wood, I think it was, suggested to us one thing that could be done would be to have the government aircraft factory divided up, apparently, into sections, with sections competing with one another. Did you read that part of his evidence?

Sir Hugh Dowding: Yes, I did.

4794. *Professor Gutteridge*: Have you any observations to make on that?

Sir Hugh Dowding: Only that I entirely disagree. His idea was to have several designing staffs competing against one another.

4795. *Professor Gutteridge*: Yes.

Sir Hugh Dowding: That would really intensify the situation that I have already criticised. Instead of outside firms having one government designing staff to compete against they would have three or four. The point is that the chief designer, the big brain behind the aeroplane—I am not speak-

ing of any individuals, I am speaking only in generalities—if he is a government servant, has a steady career; he comes in at the bottom and at a certain stage he is promoted to an important position in the design staff, and he stays there till the end of his time. He knows he is going to get a pension at the end. The result of that is that you get a great deal of good, steady, reliable work, but it is not the kind of system under which you get flashes of genius.

4796. *Professor Gutteridge*: May I revert to something that you said just now? I am not sure whether I understood you correctly. I think you said the tendency would be for anybody in your position at the Air Ministry to be advised to accept the government design.

Sir Hugh Dowding: Yes.

4797. *Professor Gutteridge*: Why do you say that?

Sir Hugh Dowding: Because the same individuals who are responsible for advising me, while they might not be the actual individuals who were carrying out the design, would be all in the same department and all working together.

4798. *Professor Gutteridge*: Surely they would have a sufficiently independent mind to distinguish between government designs and other designs.

Sir Hugh Dowding: No; I think they would give me a perfectly honest opinion, because they would conscientiously believe that such and such a line was the best line to work on, and that would be the same line as that on which the government designers were employed.

4799. *Professor Gutteridge*: That is your own personal view.

Sir Hugh Dowding: That is a very deep conviction.

4800. *Sir Philip Gibbs*: All your reasons are based on the fact that it is a very youthful craft.

Sir Hugh Dowding: They are intensified by that circumstance, but it is of general application.

4801. *Sir Philip Gibbs*: In the course of time do you anticipate any approach to standardisation of types?

Sir Hugh Dowding: Yes, I think so, but I think it is a long way ahead still. You must remember that up to, we will say, 1925, aeroplanes were built of wood; now they are built of metal; outside, the appearance is very much the same but the actual mechanism of the modern aeroplane and the engineering problem of building a metal aeroplane is entirely different from the problem of building a wooden one. Progress is rapid now and I can imagine that in perhaps 15 or 20 years time it may be approaching stabilisation, but not in the immediate future.

4802. *Sir Thomas Allen*: It has suggested itself to the minds of some of us that this being a relatively new arm of the service and 90 per cent. of the total output being consumable, here was a position where the government itself could well make a venture and test out the possibilities of government production. You do not agree with that?

Sir Hugh Dowding: They made their venture. They tried it out at Farnborough during the War.

4803. *Sir Thomas Allen*: Do you think that was a fair test, during the War?

Sir Hugh Dowding: I think so; it was a very representative result, and what would be likely to happen again.

4804. *Sir Philip Gibbs*: It tended to standardise a very inefficient type.

Sir Hugh Dowding: A very sound and reliable type, but soundness and reliability are not what are required in the modern war; it is performance and always more performance. You must never be content.

4805. *Mr. Spender*: Aeroplanes are always going out of date.

Sir Hugh Dowding: Yes.

4806. *Mr. Spender*: I suppose you have no idea of the life of an aeroplane?

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[Continued.]

Sir Hugh Dowding: Yes, the life of an aeroplane regarded as a flying machine is increasing every year. 2,000 or 3,000 flying hours is perhaps quite a reasonable sort of ideal to aim at, but in war the life of an aeroplane averages 50 or 60 hours, and the lower its performance the shorter its life however reliable it may be as a flying machine. 4897. *Sir Philip Gibbs:* I think Mr. Spender meant the life of an aeroplane before it becomes obsolescent.

Mr. Spender: Yes.

Professor Gutteridge: Types change very quickly?

The following memorandum was submitted:

VII. ALLEGATIONS OF BRIBERY.

JOINT MEMORANDUM BY THE ADMIRALTY,

THE WAR OFFICE AND THE AIR MINISTRY

1. The statement has been made in the Report of the Temporary Mixed Commission at Geneva dated 15th September, 1921,

"That armament firms have attempted to bribe Government officials both at home and abroad."

With this statement should be read the allegations referred to in the pamphlets of the League of Nations Union "that discrimination has been made by officers of the Ministries in the allocation of orders to private firms with a view to obtaining upon retirement from the services positions as directors on the boards of Armament Firms."

2. So far as the service departments are concerned both allegations are without foundation.

3. The allegations may be considered from the points of view whether the system is such as to afford adequate safeguards against bribery and whether in fact cases of bribery have occurred.

4. As regards the system, the machinery may differ in the three service departments, and the Commission will no doubt desire to supplement the information given in this memorandum by examination of witnesses from the three departments as to the detailed procedure in force in each department. But the same broad principles apply in all three departments and it is claimed that those principles render effective bribery difficult if not impossible.

5. Bribes might be offered by armament firms with the following objects:—

To induce a department

(1) to embark on a programme of purchase of armaments which it would otherwise not purchase;

(2) to buy stores from one firm rather than another;

(3) to pay a higher price than was justified.

As regards (1) general military* policy with which any purchase programme must conform is laid down by the Staff. Subject to that policy, the responsibility for putting forward proposals for the purchase of armaments rests with the responsible Military Member of the Board. But these proposals are subject to financial criticism by the finance department which is under an entirely different Member of the Board. Under the existing system it would hardly be possible for an unjustifiable programme of purchase to be launched through corrupt influence: every programme must be able to stand on its own merits the examination of more

than one individual Member of the Board and must be accepted by the Board as a whole. As regards (2) when provision has been made in estimates for the purchase of armaments, or any other stores, the military or requisitioning department concerned forwards details of its requirements to the Contract Department which is responsible for placing and administering headquarter contracts. The Contract Department is not under a Military Member of the Board, but under a Civil Member, who is also a Member of Parliament. There are thus two departments, each responsible to a different Member of the Board, concerned in procuring the supply of a store—the demanding department and the Contract Department. This in itself is a safeguard against irregularities. When the Contract Department receives notice of the military requirements the normal rule is to go to competitive tender for them, and, provided that the articles correspond with the specification and that delivery is satisfactory, to accept the lowest tender. (There are stringent rules regulating the opening and scheduling of tenders and the Commission, if they desire to have details of these safeguards in each department, will no doubt examine the three departments on the matter.) If on receipt of the tenders the lowest is not accepted, it is the practice to record the reasons for this action on the file, which is open to inspection not only by the finance department but by the Exchequer and Audit Department. In important cases any proposal to pass over an apparently suitable lower offer would be submitted by the Director of Contracts for Ministerial authority, for it is fully recognised that the established principle of public purchase is competition and the acceptance of the lowest offer and that good reasons are necessary to justify a departure from this rule.

In some cases, however, even where competition is practicable there may be special reasons, usually of a technical character, for going to single tender.

In such cases unless it is an experimental order, the rule observed by the War Office and the Air Ministry is that if the contract is over £500 in value Ministerial authority for placing it is necessary: if it exceeds £20,000 the authority of the Secretary of State is required. Similarly, in the Admiralty, if a single-tender contract presented exceptional features, whether in point of magnitude or otherwise, the prior approval of the Board would be sought.

There are also cases, and this is particularly so in regard to certain armament stores, in which competition is limited or impracticable; for example, the store may be to the design of a firm which on this ground has claims to a share of the orders: or there may be only one source of supply. In such cases, the facts are recorded on the file, and steps are taken, as explained later in this memorandum, with the object of preventing the monopoly from resulting in excessive prices.

It is always possible, of course, to argue that the final choice between different types of a particular armament, when a new type is being

* In this memorandum the term military is used to cover naval, military and air forces: the term Staff to cover the Naval Staff, the General Staff and the Air Staff: the term Board to cover the Board of Admiralty, the Army Council and the Air Council. The term "Armament Firm" is taken to mean the chief suppliers to the Service Departments of munitions of war in their finished state. The term "munitions of war" includes vessels of war and all the articles covered by paragraphs (i) to (ix) of Article (i) of the Arms Export Prohibition Order 1931.

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[Continued.]

adopted, must often rest with some highly placed technical officer and that he or the officers advising him might be actuated by some improper motive in coming to a decision. For instance, it might be a choice between two types of aircraft of almost equal capacity or performance and one might be chosen in preference to the other because the officer with whom the final decision rested allowed himself to be swayed by unworthy influence. There is, in theory, such a possibility. That it is so improbable that it can safely be set aside as a practical impossibility can be affirmed with the most complete confidence. No officer who has reached a position in which he has power to decide in such a matter is in the least likely to found his judgment upon anything else than the good of the service. No advantage which he might gain from favouring the worst of two or more competing types of armament could possibly offset the professional discredit which he would bring upon himself by deliberately imposing upon the service an inferior type of armament when a better type was obtainable. That such an officer would allow himself to be improperly influenced in a matter which might affect the success of the service for which he was responsible is indeed neither more nor less probable than that any other individual holding a public position which carries great responsibilities—for instance a Minister of the Crown, a Judge, or a Member of a Royal Commission—will betray his trust. In point of fact, there is no shadow of evidence for suspecting that any case of corruption or undue influence of this sort has ever arisen.

As regards (3), the normal safeguard against excessive prices in competition. Where this is not available the departments endeavour by other means to ensure that the prices are fair and reasonable. The usual way is by some method of costing. The actual method adopted by the three departments varies. In the case of the Admiralty the system generally in vogue for armament stores is one by which the firm's estimate is examined both by professional accountants and by technical experts. The professional accountant after visiting the firm's works assesses a rate for establishment charges applicable to the period in which the work is to be executed. The technical expert estimates from the drawings what the actual cost should be having regard to the firm's plant, equipment, etc. The reports of these officers form the basis for negotiation between the Director of Contracts and the firm's representatives.

The clause normally included by the War Office in non-competitive contracts with their regular contractors provides that the tender price is to be regarded as a maximum price and that the contractors' actual costs shall be subject to investigation on completion of the contract by the department's accountants. In no case where this clause is accepted can the contractor get more than the tender price: if that price is found on investigation to be excessive it is reduced accordingly. The decision rests with the department. In making their investigations the accountants where necessary have access to technical advice and assistance. The Air Ministry employ both the Admiralty and the War Office methods, adopting the one or the other as appears most appropriate to the particular circumstances.

The foregoing statement of procedure shows that when certain exceptional considerations occur Ministerial authority is required for the allocation of contracts, but it is not in these circumstances only that such approval is obtained. Certain contracts of great importance and value are submitted for Ministerial approval in the Admiralty, War Office and Air Ministry whether the exceptional considerations already described arise or not.

5. The preceding paragraphs endeavour to show that the system in force in the three service departments is such as to safeguard the state against bribery in connection with the placing and administration of contracts. To the question whether, despite the system, bribes have been offered to and accepted by members of the three service departments from armament firms, it is of course impossible to prove a negative. It can only be said that in none of the three departments is there a record of any such case since the War, and that all three departments are satisfied that in the placing and administration of contracts their officials carry out their duties with honesty and integrity. It must be recognised that in the last resort—whatever system may be in force—it is on the honesty and integrity of the individual that reliance must be placed. No scrap of evidence has been produced that officials of the service departments have been directly bribed by armament firms, and the departments are aware of none. It has however also been alleged, as stated at the beginning of this memorandum, that a more subtle form of bribery has been practised and "that discrimination has been made by officers of the Ministries in the allocation of orders to private firms with a view to obtaining upon retirement from the services positions as directors on the boards of Armament Firms." In support of these allegations certain names have been mentioned. It is freely admitted—indeed it is common knowledge—that members of the services have, after retirement, joined the boards of firms providing munitions for the service of the Crown. From the point of view of the public service, however, it is claimed that there is an advantage in this, for in such highly technical matters it is most desirable that the manufacturer should be fully acquainted with service needs, service experience and service views. The fact that such appointments have been given is no evidence that they have been given for improper motives and no shred of evidence has been adduced that discrimination has in fact been made in the allocation of orders to private firms by any one at all. It may perhaps be suggested that if this system of inducement to officials to show improper discrimination in the allocation of contracts were really in existence senior officials of the contract departments of the Admiralty, the War Office or the Air Ministry, by whom the peace time allocation of contracts is made, might have been expected to be the special objects of such inducement. In fact no such official has been appointed, or so far as is known offered appointment, to the board of an armament firm during the past 15 years (nor, so far as is known, at any earlier time), even though during the 15-year period two Directors of Contracts, two Deputy Directors and four Assistant Directors in charge of armament contracts have retired in the ordinary course from their departments.

strongly upon it, and you set out your case very fully. In fact I gather the departments strongly resent the suggestions which have been made.

Mr. Bovenchen. Very strongly indeed.

4812. Sir Philip Gibbs: There is one part of the case which you have left out, if I may say so. In your defence of the private manufacturers and in your denial that they use methods of bribery you do not deal with bribery of officials in foreign countries by

4810. Professor Gutteridge: Memorandum VII deals with allegations of bribery. I think it goes a little beyond that. It deals with suggestions that have been made as to improper pressure being brought to bear in various directions on government officials. I do not know whether you desire to supplement it in any way; it seems to me a very full and exhaustive statement.

Mr. Bovenchen: We feel very strongly upon it.

4811. Professor Gutteridge: I know you feel very

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[Continued.]

sellers of arms from this country. You leave that on one side.

Mr. Bovenschen: If I may say so, I do not think that point was before the service departments. We were dealing with the allegations made with regard to His Majesty's services.

4813. *Professor Gutteridge:* You are on your defence, repelling charges which have been brought against you.

Secretary: It is fair to say that nobody has made any charges.

Mr. Bovenschen: I would rather use the word insinuations.

4814. *Sir Philip Gibbs:* Sir Maurice Hankey takes a larger argument and talks of the possibility of private arms manufacturers bribing officials of foreign countries. I think the question must be addressed to Sir Maurice.

Sir Walter Jenkins: I must say this, speaking from observation: I think you get similar accusations of bribery in regard to dealers in other products; they are not peculiar to arms.

Sir Philip Gibbs: No. But I think you will admit that weapons of war are slightly different from other classes of goods.

4815. *Professor Gutteridge:* You say here "No scrap of evidence has been produced that officials of the service departments have been directly bribed by armament firms, and the departments are aware of none." That summarises your views on the evidence?

Mr. Bovenschen: Yes.

4816. *Professor Gutteridge:* As I understand, you also take the standpoint that the traditions of the civil service are such as normally to prevent anything of the kind happening.

Mr. Bovenschen: Yes.

4817. *Sir Kenneth Lee:* I take it you would agree that no regulations can prevent bribery if the persons are willing.

Sir Hugh Elles: We have no experience.

Mr. Bovenschen: The main safeguard against this is the standard of the civil service.

4818. *Sir Kenneth Lee:* The tradition.

Mr. Bovenschen: Yes.

Sir Reginald Henderson: Years ago I was a member of a commission which placed a large order in Greece and another in Roumania for goods which eventually found their way into the British fleet in 1914-15, and in no case was I approached by any British firm with any idea of bribery or anything else. I would like to make that point. It is my own personal experience.

4819. *Sir Kenneth Lee:* And they did not bribe the Roumanians?

Sir Reginald Henderson: No. It was impossible.

4820. *Mr. Spender:* Of course, I accept everything that is stated here. There is not in the mind of any of us any kind of reflection on the officers of the army, navy, air force, or other public services, but there is one point on which I should like to ask your opinion. It has been discussed a good deal. May not the prospect of obtaining employment in armament firms at relatively high salaries after retirement on pension be an undesirable influence—I will not say a conscious influence? I do not think we can conceal from ourselves that that is a matter which is discussed a good deal in public to-day. I am not putting it on the plane of bribery, or anything like that, but I should like your opinion as to whether you think it is a desirable way of creating the necessary liaison between the government and the armament firms.

Sir Hugh Elles: The armament firms do employ ex-soldiers and sailors, but I think they employ them mainly because of their technical skill. There are a number of cases.

4821. *Mr. Spender:* Oh, undoubtedly.

Mr. Bovenschen: We have endeavoured to show in this memorandum that the actual placing of the contract is done by a department not under a military

but under a political chief, and that, as far as we know, no highly-placed contract official has ever been offered or accepted any—

4822. *Mr. Spender:* That is not the point at all.

Mr. Bovenschen: It seemed to me to show that there was not very much substance in that argument.

Sir Walter Jenkins: I think the service officers who retire after they have reached the end of their service are taken on chiefly because of their technical skill. There is no doubt that there is a great advantage—it is a mutual advantage, in my opinion—in the arms manufacturer having the experience of an officer who has been a user of those particular weapons.

4823. *Sir Philip Gibbs:* Does it not sometimes lead to a kind of divided allegiance? I myself have met naval officers who have complained that men under their command are looking forward to a position under an armament firm and it creates a sense of uneasiness during their term of office with the service.

Sir Walter Jenkins: I myself have no experience of that; in fact, I think, considering the number of officers retiring from the navy, there have been very few officers who have gone to an armament firm.

4824. *Sir Philip Gibbs:* From the navy?

Sir Walter Jenkins: From the navy.

4825. *Sir Philip Gibbs:* I think you will find that the list is quite a long one.

Sir Walter Jenkins: Not in proportion to the number of officers who retire.

4826. *Sir Philip Gibbs:* Certainly, having regard to the importance of the individual.

Sir Reginald Henderson: I think you are right up to a point, but it must be borne in mind that a large number went into the service as youngsters who, owing to the cutting down of personnel after the War, were "axed." They are young fellows of 32 and throughout have gone into the armament firms in very subordinate positions in order to get their head and butter.

Sir Philip Gibbs: I am thinking of senior officers.

4827. *Professor Gutteridge:* Do you not think a period should be allowed to elapse between leaving the government service and entering the service of an armament firm? Has it not occurred to you that a year or two should elapse? I believe that has been very often suggested.

Sir Reginald Henderson: If any firm—I do not mind whether it is an armament firm or any other—takes on an individual officer, from whatever service he may come, and thinks it can use his brains, I cannot see why those brains should be allowed to lie stagnant.

4828. *Professor Gutteridge:* I am not suggesting it myself, but the suggestion is put forward that there is some kind of subtle influence brought to bear by which a young officer is induced to leave the government service and pass into the service of armament firms, taking with him a certain amount of knowledge that he has gained in the government service. There are other aspects of the question which are criticised. The suggestion was made with a view to preventing that. It would not affect the retired man, it would not matter twopence to him, but it would prevent the young officer drifting out of the navy or the army into armament firms.

Sir Reginald Henderson: I should have thought the number of people who had been induced to enter armament firms was very few indeed.

4829. *Professor Gutteridge:* As you say, the fear of the "axe" may have driven them.

Sir Walter Jenkins: Not only the fear, but the actuality.

4830. *Sir Thomas Allen:* Did not the first great armament constructor go from Woolwich and start on his own?

Sir Hugh Elles: Sir George Haddock?

4831. *Sir Thomas Allen:* Sir George Armstrong.

Sir Hugh Elles: Yes.

4832. *Sir Thomas Allen:* You have further remarked

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[Continued.]

that it is because of the technical experience that they transfer their services to private enterprise.

Sir Hugh Elles: I have a list here covering a great many years and it contains very few soldiers; there is only about a dozen.

4833. *Professor Gutteridge:* I think somewhere in these papers—I do not know where—you draw attention to the fact that, although the board of a trade concern was more or less assisted by service

The following Memorandum was submitted:

VIII. INVENTORS IN THE SERVICE OF H.M. GOVERNMENT.

JOINT MEMORANDUM BY THE ADMIRALTY, THE WAR OFFICE AND THE AIR MINISTRY

1. Suggestions have been made in evidence which imply that inventors in the service departments are not given the same encouragement as are those in private industry. *Sir Maurice Hankey*, in the passage dealing with inventors in his first memorandum of evidence (paragraph 33 *et seq.*) has explained the great importance which the service departments attach to the research and invention in connection with armaments carried out by the private firms in addition to the corresponding activities within the service departments themselves. In a footnote to his addendum to paragraphs 33 to 39, he indicated in passing that there would be no difficulty in refuting the suggestion that there is little or no incentive or encouragement to service inventors. The service departments understand that evidence is now required in regard to this aspect of the matter, to which the following memorandum is accordingly addressed.

2. It is believed that it is customary in private manufacturing concerns to make arrangements to ensure that they have first call upon inventions connected with their business which may be made by members of their staff, and the Royal Commission have no doubt received trade evidence to that effect. The necessity of such arrangements is in fact self-evident where research staffs are maintained, or in any business where a considerable commercial or other advantage may follow the development of an invention.

3. It is equally self-evident that such an arrangement is necessary within a service department. The system adopted provides broadly that where an invention is taken into use by the government the inventor shall receive a reward in respect of such use, and that in addition he may, according to circumstances, share in the proceeds of any commercial exploitation, or may even be entirely free to deal with the commercial rights himself. Where an invention arises out of the inventor's duties the grant of a financial award for government use would however depend upon the invention being particularly important or productive of large savings.

4. To give effect to these principles the existing service regulations (which are applicable to the Civil Staff as well as to the Navy, Army and Air Force) provide generally that an inventor may, subject to certain restrictions to ensure secrecy, file a provisional application at the Patent Office on his own initiative and that as soon as he has done so he must report the matter to higher authority and conform to the governing regulations. Thereafter the invention and patent may be dealt with under the following alternative conditions:—

(1) If complete control is desired for purposes of secrecy or otherwise (*e.g.*, if the invention arises from research which the inventor was specifically appointed to carry out) the inventor may be called upon to assign the invention and patent to the government. If secrecy is unnecessary the government may itself negotiate for the commercial use of the patent and the inventor may be granted a share of the commercial proceeds.

(2) The government may be satisfied with an agreement reserving the right to use the inven-

people, they did not get a contract for machine guns.

Sir Hugh Elles: That was in 1934.

4834. *Professor Gutteridge:* There was a case where, if there had been any knowledge, it would have been applied.

Sir Hugh Elles: The contract had to go abroad.

Professor Gutteridge: That was a strong case. Perhaps we might pass to the next head.

The following Memorandum was submitted:

tion and patent free of legal obligation, the inventor being otherwise free to dispose of or deal with the commercial rights. The government may however reserve the right to share in the profits arising from the inventor's exploitation of the commercial rights. (This method of dealing with the invention might be applied if, for example, the invention were akin to the inventor's duties but did not actually arise out of them, and secrecy were unnecessary.)

(3) The government may release the invention and patent entirely to the inventor (*e.g.*, if the invention were of no interest to the service).

5. The fact that the inventor may receive a share of commercial proceeds does not deprive him from applying for an *ex gratia* award in respect of the use of the invention for government purposes.

6. Departmental committees exist for the purpose of considering and recommending awards to inventors whose inventions have been adopted and taken into use for government purposes. Departmental committees also recommend the extent to which the government and the inventor shall share in the commercial proceeds.

7. A Central Awards Committee has been constituted to which body an inventor is permitted to appeal if he considers that the amount of any award offered in respect of the use of a patented invention in His Majesty's Service is inadequate. Inventors may also be permitted to appeal to the Central Awards Committee against the department's decision regarding the inventor's share of commercial proceeds.

8. In addition to the above mentioned committees, facilities are available in service departments for affording recognition in the case of suggestions put forward by workmen, and awards committees exist in main fleets, home dockyards and the Royal Arsenal for a similar purpose. Awards are made also from a trust fund at the disposal of the Admiralty to inventors in the Royal Navy and Royal Marines who contribute to the improvement of fighting appliances.

9. The records of the Royal Commission on Awards to Inventors, which body ceased to function in 1933, and the records of the Departmental Awards Committees mentioned show that a large number of awards have been granted to service inventors. The Admiralty Awards Council set up after the War has since its inception dealt with nearly 400 cases, of which the vast majority are concerned with inventors within the service. In 50 per cent. of the cases considered an award was granted. The Air Ministry has dealt with over 300 cases in 50 per cent. of which an award was granted; and the War Office with about 500 claims on behalf of service inventors, of which it is calculated that in recent years, about 85 per cent. have resulted in awards.

10. An important factor taken into account in assessing awards and the share of commercial proceeds allocated to the inventor, is the relation of the invention to the inventor's duties.

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[Continued.]

4835. *Professor Gutteridge*: I do not know whether you wish to supplement that memorandum in any way. Will you tell us how you deal with the inventor in the air service?

Sir Hugh Douding: It is a difficult question to settle how much pecuniary advantage a service officer or civil servant should obtain from an invention which was made, perhaps, in the course of his duty, in government time and with government facilities. There are two forms of criticism commonly launched against the present system. One is that the inventor is too hardly treated and is not allowed to reap the fruits of his ingenuity. That is rather the criticism here. There is another type of criticism which says that he is too well treated and that he ought not to get so much; and, further, that he should not be in a position to adjudicate, perhaps, upon rival inventions from outside. On the whole, in my opinion, we have a very good system. The extent to which the inventor shall be permitted to profit from the commercial aspect of

his invention is assessed on the merits of each particular case. It is assessed by a committee, the finding of which—speaking for the Air Ministry, at any rate—goes up to two members of the Council; each individual case is reviewed, and if an inventor is finally dissatisfied with the terms of the award, he has an appeal to a central committee.

Mr. Holloway: The Central Committee on Awards to Inventors.

Sir Hugh Douding: On the whole, although it is a difficult question, I think we have a very good solution.

Dealing with that other matter which I have mentioned but which has not formed the subject of criticism, that a man may find himself in the position of deciding for or against the ideas of his rivals which might affect his pocket, we have very definite regulations that no individual is allowed to adjudicate on such a matter but must leave it to his superior, whoever he may be. I do not think that I have anything more to say on this subject.

The following memorandum was submitted:

IX. SECRECY OF GOVERNMENT DESIGNS UNDER PRIVATE MANUFACTURE

JOINT MEMORANDUM BY THE ADMIRALTY, THE WAR OFFICE AND THE AIR MINISTRY.

1. Dr. Addison's evidence on the 6th day, 21st June, 1935, includes a statement in reply to a question, No. 916, by Sir Philip Gibbs to the effect that "owing to the system of manufacture for foreign orders it is possible for things to be supplied to others which we would prefer to keep to ourselves."

2. It is desirable to examine the position concerning firstly government designs and apparatus, and secondly inventions relating to munitions of war produced by government contractors and private inventors.

3. It should be mentioned as regards the first category that all contracts for secret apparatus are made with a special reference to the Official Secrets Act, and a clause in the contract forbids disclosure of the work or designs, etc., to any unauthorised person, British or foreign. Steps are taken to ensure that adequate precautions are maintained to secure the observance of these provisions. Certain apparatus of a highly secret nature is manufactured in a separate part of the factory to which unauthorised persons are not allowed access. Moreover the apparatus is made under the inspection of government resident overseers.

4. Under the Official Secrets Act, it is an offence for employees of private firms equally with government employees to communicate information about secret government work to unauthorised persons. It would be contrary to his own interests—to put the matter on the lowest basis—for the contractor himself deliberately to disclose an important customer's designs to other parties without permission, or to allow his employees to do so, and applications are received almost from day to day from contractors who wish to supply apparatus of government designs (not, in many cases, "warlike" apparatus) to outside customers.

5. To turn now to inventions produced by firms with or without prior experience of government orders, under the Official Secrets Act it is a misdemeanour for any inventor to communicate an invention relating to munitions of war to a foreign power, notwithstanding that the invention might have been offered to a government department and refused. It is thought, however, that a department which did so refuse an invention ought, in fairness, to warn the inventor not to disclose the details to a foreign government, if such disclosure would be prejudicial to the safety or interest of the state. (If no such warning were given the department would appear in an unfavourable light if the inventor were prosecuted for an offence under the Official Secrets Act. Similarly, if the department were asked by the inventor for an opinion on the point of disclosure abroad it could hardly refrain from giving one, and

if the department saw no objection to disclosure the inventor could hardly be prosecuted for an offence under the Act.) If government departments objected to disclosure abroad they would hesitate to deprive a private inventor of the use of his own invention without compensation in some form, but they have that power in reserve, and would use it if necessary, especially if, as postulated by Dr. Addison's remark quoted in paragraph 1, the invention arose from government work.

6. In practice no such drastic measures are found necessary. Special arrangements to ensure the secrecy of any improvements in apparatus manufactured by them under government contract exist with several of the more important contractors. Certain armament firms are under agreement to submit to the Admiralty any new ideas and are amenable to the department's wishes to keep an invention secret. As regards others who produce improvements as a result of their government orders they naturally seek to interest the department concerned in the hope of attracting further orders. Whether the departments adopt their ideas or not, no difficulty is experienced in securing that the designs are not communicated to a foreign power unless the departments are agreeable to that course.

7. It is not possible for government departments to inspect applications for patent before they are accessible to the public, but an arrangement has been made with the Patent Office by which that department calls the attention of patent agents to the desirability of inventors communicating with defence departments before an application relating to munitions of war is brought to the notice of other parties. It is also the practice of the service departments to examine the list of applications for patent as published in the Official Journal (Patents). Where the title suggests that the subject matter may be of interest for defence purposes the inventor is requested to permit confidential examination of the provisional specification. Such requests are normally complied with and the departments are thereby able to judge whether secrecy is desirable in the interest of the state. Retired officers of the forces and ex-employees of armament firms are in fact usually anxious to place their inventions before the departments. Apart from these classes of inventors most warlike inventions come from arms manufacturers, whose position is dealt with above, or from executive and research officers in the services. It is most improbable that an amateur would produce an invention of major importance useful for war, and if he did, it is extremely unlikely that he would offer it to a foreign country before it had been considered by one of the defence

20 May, 1936.]

[Continued.]

departments. Occasionally inventions by foreigners are offered to the Admiralty, but they are rarely adopted.

8. To sum up on the major point under discussion—employees whether of the government or of private firms have much the same inducements not to disclose information about secret work on

which they are engaged, while contractors themselves may be relied upon out of self interest as well as loyalty to observe the department's desires in this matter. In the most unusual event of a contractor being disposed to consider private profit before the national interest there is every deterrent by way of penalty and loss of favour to turn him from that course.

4836. *Professor Gutteridge*: I do not know what other members feel, but I think we have discussed this thoroughly already and we have asked you a good many questions about it.

Sir Philip Gibbs: Have you read the evidence of Captain Llewellyn, Admiral?

Sir Reginald Henderson: Yes, I have studied it.

4837. *Sir Philip Gibbs*: He occupied an important position. He was Chief Inspector of Naval Ordnance for some years, and a good deal of his evidence gives expression to his opinion that secrecy is not very well kept in the private armament firms and that a secret patent or a new weapon devised for government use very rapidly passes from the private armament firms into foreign countries. He gave various instances. Would you like to make any comment?

Sir Reginald Henderson: Of course, it is some time since he was C.I.N.O. I dare say, like everything else, it is extremely difficult to keep everything secret; eventually it comes out, but, since those days, steps have been taken to establish secret workshops where the probabilities of leakage are considerably less. I would not put it higher than that.

4838. *Sir Philip Gibbs*: Do you think the possibility of leakage is greater in a private workshop than it is, for instance, in an ordnance factory or a dockyard?

Sir Reginald Henderson: I do not.

4839. *Sir Philip Gibbs*: One of Captain Llewellyn's points was that the actual weapon, or something very similar, was very rapidly sold to foreign countries, and he gave instances with regard to Japan.

Sir Walter Jenkins: Would you point out the passage in the evidence, Sir Philip?

4840. *Sir Philip Gibbs*: Yes. It is on page 551 of the evidence of Captain Llewellyn,* under paragraph (c), "Secrecy". He says: "Private makers work foreign and British contracts side by side and it is impossible to preserve entire secrecy. For example in 1913 we were making 15-inch guns described and referred to as 13.5-inch and in the same shops as that were guns, 12-inch and 13.5-inch, for the Japanese and Turkish governments; and similar work for Chili and Brazil". His point, you see, is that our most modern type of weapon was at that particular time being sold to foreign countries, one of whom was our enemy.

Sir Reginald Henderson: It was a very important position, that of Chief Inspector of Naval Ordnance, and I have not been able to trace that in that position he represented it to the Admiralty at the time.

4841. *Sir Philip Gibbs*: I do not follow that.

Sir Reginald Henderson: It was a very important position, that of Chief Inspector of Naval Ordnance and, of course, as Chief Inspector he looks after where these guns are made, and I cannot at the moment find any reference in the Admiralty that he pointed out that these guns were what he says they were.

* Minutes of Evidence, 18th Day.

Professor Gutteridge: You mean he ought to have reported it but you cannot find any trace that he did?

Sir Philip Gibbs: Do you not think that it might have been the policy of the government to let the foreign powers have these guns at that time?

4842. *Sir Kenneth Lee*: May I ask a question about patents? As I understood, in reply to Mr. Spender, you said that if the government took a secret patent they would compensate the firm, but if they allowed the firm to take out a patent and it was not made secret then, of course, either the firm could manufacture here and sell abroad, or they could license manufacture abroad.

Mr. Spender: Could the government stop them getting a licence for manufacture abroad?

Sir Walter Jenkins: No, I do not think they could.

4843. *Mr. Spender*: If you declined to buy a patent or pay for a patent could you still retain the right of refusing a licence for a thing to go abroad?

Sir Walter Jenkins: Yes.

4844. *Mr. Spender*: Then you may catch the manufacturer both ways?

Sir Walter Jenkins: Yes.

4845. *Sir Kenneth Lee*: But if he takes out a patent it is published to the world?

Major W. J. Coombes, M.B.E., R.A.: It could be made in a foreign country. Although you might stop the British manufacturer from making it here you could not stop its being made in foreign countries.

4846. *Sir Kenneth Lee*: The patent would be published?

Major Coombes: Yes.

4847. *Professor Gutteridge*: You have to stop him before that?

Major Coombes: Yes.

4848. *Professor Gutteridge*: I think under the Patents Act and the Official Secrets Act you have an opportunity to stop him. If you allowed it to go through it would be your fault, not the fault of the regulations? I was under the impression that under the Official Secrets Act a discovery with regard to munitions was not to be communicated without first being mentioned to the government?

Major Coombes: Yes. Apart from that we have a system of watching all applications, and we take action in regard to any which appear to us should be secret.

4849. *Professor Gutteridge*: But is the obligation upon them or upon you?

Major Coombes: No, they are not bound by law to communicate with us.

4850. *Professor Gutteridge*: But the law binds them not to communicate with anybody else?

Major Coombes: Yes.

Professor Gutteridge: Speaking on behalf of the Commission, may I say we are very much obliged to you for all the trouble that you have taken and the very clear evidence that you have given us to-day.

(Adjourned.)

APPENDIX
MEMORANDA SUBMITTED BY THE ADMIRALTY, THE WAR OFFICE
AND THE AIR MINISTRY

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE
OF AND TRADING IN ARMS

MINUTES OF EVIDENCE

22

TAKEN BEFORE THE

ROYAL COMMISSION ON THE
PRIVATE MANUFACTURE OF
AND TRADING IN ARMS

TWENTY-SECOND DAY

THURSDAY, 21ST MAY, 1936

WITNESSES—

COLONEL SIR M. P. A. HANKEY, G.C.B., G.C.M.G., G.C.V.O.
SIR OSWYN A. R. MURRAY, G.C.B.

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LONDON

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ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TERMS OF REFERENCE,—

(1) To consider and report upon the practicability and desirability (both from the national and international point of view) of the adoption (a) by the United Kingdom alone, (b) by the United Kingdom in conjunction with the other countries of the world, of a prohibition of private manufacture of and trade in arms and munitions of war, and the institution of a State monopoly of such manufacture and trade.

(2) To consider and report whether there are any steps which can usefully be taken to remove or minimize the kinds of objections to which private manufacture is stated in Article 8 (5) of the Covenant of the League of Nations to be open.

(3) To examine the present arrangements in force in the United Kingdom relative to the control of the export trade in arms and munitions of war, and to report whether these arrangements require revision, and, if so, in what directions.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON THE PRIVATE MANUFACTURE OF AND TRADING IN ARMS

TWENTY-SECOND DAY

Thursday, 21st May, 1936

PRESENT:

The Rt. Hon. Sir JOHN ELDON BANKES, G.C.B. (*Chairman*).

Sir PHILIP GIBBS, K.B.E.

Dame RACHEL E. CROWDY, D.B.E., R.R.C., LL.D.

Sir THOMAS ALLEN.

Sir KENNETH LEE, LL.D.

Professor H. C. GUTTERIDGE, K.C., LL.D., M.A.

Mr. J. A. SPENDER.

Mr. E. TWENTYMAN (*Secretary*).

Mr. D. HAIGH (*Assistant Secretary*).

Colonel Sir M. P. A. HANKEY, G.C.B., G.C.M.G., G.C.V.O., called and examined.

4851. *Chairman*: Sir Maurice, I understand you wanted to add something to your first statement?

Sir Maurice Hankey: If I might, Sir.

4852. *Chairman*: Yes, please.

Sir Maurice Hankey: It will take me a very short time. First of all there was a question that I was asked by Sir Thomas Allen last time as to whether any new government factories were being built in connection with the new scheme. I could not really tax my memory at the moment, but I have looked up the facts.

4853. *Sir Thomas Allen*: I expressed some doubt with regard to the definiteness of the White Paper in respect of what the government intended to do.

Sir Maurice Hankey: I thought you wanted to know whether any new factories were to be built.

4854. *Sir Thomas Allen*: Yes, that is right.

Sir Maurice Hankey: This statement was made by the Lord President in the House of Commons on the 2nd March, 1936, during a debate on Special Areas. He had given some details about the Air Ministry putting aerodromes in different places, which would help these areas, and then he went on:—

"Further, the government have come to a definite decision that a new government factory which will be required in the carrying out of the rearmament programme will be located also in South Wales. I am able to say that the site has already been decided upon. I am afraid, however, that at this moment no indication of its position can be given."

I have nothing to add to that. The last time I summarised my conclusions as follows:—(1) The prohibition of private manufacture would be disastrous to Imperial Defence. (2) In any event it is out of the question when we are in the throes of a great programme for reconditioning our Forces. (3) The case for it has not been established.

Last time I dealt with the first two conclusions. Before I start on No. 3 I would like to reinforce the evidence that I then gave, just on one point. The Royal Commission will remember that I made a *prima facie* case rather tentatively as to the value of private manufacture of arms to civilian industry. Since then I have had rather an interesting confirmation. Last week I spent 24 hours at sea on board the *Queen Mary*, and again and again I wished that the Royal Commission had been with me to see what I saw and hear what I heard. Whilst

visiting the engines a very high expert of the Admiralty happened to mention that the firm which built the *Queen Mary* had also built *H.M.S. Hood*, and that the experience gained in the case of *H.M.S. Hood* had made the construction of the *Queen Mary* possible. Now it so happened that the actual designer of the *Queen Mary* engines was there, so I turned to him and asked whether he could confirm this, and he told me it was perfectly correct, that he had gained invaluable experience for the *Queen Mary* engines from his work on the engines of *H.M.S. Hood*. That set my mind going, and I started inquiries about all sorts of details in the *Queen Mary*, auxiliary machinery and scientific apparatus of all kinds. I discussed these matters with the experts, both Naval experts, of whom a good many were on board, and the experts of the firms, and I found that on both sides the utmost importance was attached to the close co-operation which was obtained in such enterprises. I found that the Admiralty experts had been closely watching all the technical developments in the *Queen Mary* and had attended her trials. Of course, the problems are not quite similar in all cases, but each side emphasised that they had a great deal to learn from the other in this difficult business of packing into the confined space of a ship a vast amount of appliances, and it enabled both sides to keep abreast of the very latest engineering developments. The influence of having done the last big job in engineering was very much emphasised to me, and I suggest that because the last big job or the next big job happens to be a capital ship it would be a great pity to deprive the engineering industry of this country of the opportunity for getting that experience and reaping its fruits and applying it *mutatis mutandis* to the ordinary civilian business. If we are to remain at the head of the world in engineering matters, I submit that nothing must be done to weaken the facilities for co-operation and mutual advantage which result from the present cordial contacts. Shall I pass now, Sir, to my second memorandum?

4855. *Chairman*: Yes, but I want to say a word with reference to the second memorandum, partly to explain my position, and I think the Commission's position, and also your position in reference to it. I have gone carefully through the second memorandum, and it appears to me to consist really of two parts. There is the one part, which is mainly contained

* Official Report, 2 Mar. 1936, Col. 1044.

* See Appendix p. 715.

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[Continued.]

in the appendices, which consists of material which is in the nature of additional evidence to what you have already supplied to us in the first memorandum; then there is the second part of the memorandum which really consists in the main of your criticisms upon the evidence that has been given us in support of the views, which you do not accept, in reference to the private trade in arms. I think you will realise in that respect your position is very analogous to that of counsel who is addressing the court in criticism of and observation upon the evidence that has been presented on the other side. Now in any such case the court does not accept the statements which are made by way of criticism. It does not challenge them, because in challenging them it would appear to express an opinion if it did not agree with the particular criticism. Therefore, speaking for myself, I do not propose to address any question to you in reference to that part of the statement which appears to come under the heading of criticism of the case which was presented, if I may use the expression, on the other side. Do you follow? I mean, it must not be presumed that your criticisms are accepted as just or accurate simply because you are not questioned about them.

Sir Maurice Hankey: No. I will make no presumption of that kind, Sir, but if I may say so, I do not like this attribution to me of the position of a counsel or advocate. I have no brief for the armament industry. I have never had the slightest contact with it of any sort, kind or description, right through this business. My position is this: At the outset I explained that I thought the prohibition of private manufacture would be disastrous to Imperial Defence. As the evidence developed I saw my claim being endangered by the powerful case that had been made against it, not only from the moral point of view but also from the point of view of inefficiency and so forth. On examining that case I found that there were a great many points which were contrary to what I believed to be the facts within my own knowledge and experience. I began to examine them one by one, and I found that in the light of facts, some of which are only in the possession of the government, they began to dissolve. Many of those statements and many of those examples were not correct, and it seemed to me, Sir, that if my case, to which I attach the utmost importance, was not to go by default it was my duty to lay those considerations before the Royal Commission. That is my position, Sir.

4836. *Chairman:* Yes. I only want to make the position plain. In certain parts of your second memorandum you sum up the position in such language as this—"The case is not made out at all", "The expressions used are exaggerated and offensive"—and so forth. That is the language, I will not say of a counsel, but of a critic.

Sir Maurice Hankey: Yes, it is the language of the critic who has his own point of view, the point of view of Imperial Defence and does not want to see that point of view go by default.

4837. *Chairman:* Quite so, but you quite understand that, if we do not quarrel with you for using critical expressions, here and there, it does not follow that we accept them, because we do not challenge them.

Sir Maurice Hankey: No. I quite understand that, Sir. Shall I make a statement on my second memorandum?

4838. *Chairman:* Yes, please.

Sir Maurice Hankey: I come now to my third conclusion: The case for prohibition of private manufacture and trade has not been established. In order to make good that claim, it would be sufficient for me to show that the objections to this particular industry are outweighed by its vital importance to Imperial Defence as explained a fortnight ago, and that is one object of my evidence to-day. But I hope to do much more than that. I hope to show that,

considered broadly, the accusations against this industry, so far as this country is concerned, have not been substantiated, and that the alleged objections, even if proved, would not be removed by the institution of a government monopoly, and that, therefore, the case as a whole has failed.

I will begin by quoting the government's view, which I do not think has been stated to the Royal Commission by witnesses against the industry. In 1925, in reply to a League Questionnaire, the government made the following statement:

"So far as this country is concerned, the British Government are not aware of any grave objections of a national character. As regards objections of an international character the British Government do not know of any that are peculiar to private manufacture."

In February, 1935, a question was asked in the House of Commons.

4839. *Mr. Spender:* Is this in your statement?

Sir Maurice Hankey: It is, but I have taken it a little out of order, Mr. Spender, because of what has happened. I wanted to bring this out at the very outset.

4890. *Professor Gutteridge:* It is in paragraph 20.

Sir Maurice Hankey: Yes. In February, 1935, Mr. Mitcheson asked the Prime Minister "whether, in the last ten years, any information has reached any Government Department that satisfied it that any British firm manufacturing armaments had sought improperly to influence the policy of His Majesty's Government or any foreign Government in the matter of armaments." The Prime Minister—who was Mr. Ramsay MacDonald—replied "I have caused inquiries to be made, and, as a result, I am able to say that the answer is in the negative."

4861. *Sir Thomas Allen:* Did not the Prime Minister, in making a speech, qualify it by saying "during the past ten years"?

Sir Maurice Hankey: In a speech?

4862. *Sir Thomas Allen:* Yes.

Sir Maurice Hankey: I do not know about the speech. It would take a little time to look it up, but that was his answer in the House in February. It was unqualified, as I gave it.

4863. *Sir Thomas Allen:* It is within my recollection that there was also that sentence "in the last ten years."

Sir Maurice Hankey: The speech was made in 1934, and this statement, which is an unqualified statement, was made in February, 1935. In addition, you can obtain a lot of evidence of the government's attitude in the Parliamentary Debate of 8th November, 1934, when both the speakers from the Treasury Bench, Mr. Baldwin and Sir John Simon, strongly opposed the prohibition of private manufacture and the establishment of a state monopoly. To bring the position up to date, perhaps the clearest expression of the government's view is the fact that the bulk of the orders for the reconditioning of the services is—as has already been mentioned—being placed with private industry. As there is a great deal of ground to cover, I am proposing to begin with a short synopsis. In presenting this examination of the evidence, the outstanding difficulty is the smoke screen of propaganda that has been directed against private manufacture during recent years. Now, that propaganda received a tremendous impetus at the Paris Peace Conference in the attribution to private arms manufacture of charges of "grave objection" and "evil effects." "I think it is necessary, therefore, for me to begin by showing that the Peace Conference made that assertion without any investigation at all. Next I shall go on to deal with the really shocking and shameful misrepresentation of certain proceedings of the Temporary Mixed Commission of the League of Nations in 1921, a misrepresentation which, in spite of its exposure in Parliament, has been spread all over

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[Continued.]

the world. After disposing of these historical misunderstandings and misrepresentations which really form the foundation of the post-War case against this industry, I shall turn to the evidence itself. After some remarks on the degree of prejudice, vagueness, inaccuracy and insinuation in the evidence, I shall take up in turn the general case and the detailed case as outlined in the evidence. Under those two main heads I hope to deal with all the main charges made against private manufacture and trade, meeting allegations with fact and argument with argument. I shall show, in particular, that the alleged objections and evil results of private industry, even if they were proved, would not be removed by the substitution of a state monopoly for private manufacture and trade. That is the general outline.

I come now to the historical case. There is a great absence of real historical research in this matter, but in Annex I to my memorandum I deal with a curious example of rather incidental interest—an episode of the twelfth and thirteenth centuries, when, in connection with the Crusades—an early example of international action—the Pope of Rome forbade trade in arms with Moslems. In spite of terrifying spiritual and temporal penalties for any breach, the Venetians eventually broke through the ban, and to the scandal of Christendom traded in "goods forbidden to Christians." The sequel was a series of naval wars, not between Christians and Turks, but between the Genoese and Venetians, on whose sea-power the Crusades had rested. The Venetians were victorious. I may add that subsequent investigation has shown that the culprits in this case were not private manufacturers or traders but the Venetian Government which completely controlled foreign trade and made the scandalous treaties. It is interesting as illustrating the difficulty of enforcing these things but it is only of incidental interest.

I now come to a matter of much greater historical importance which is the origin of Article 8, paragraph (5) of the Covenant which attributed "grave objections" and "evil effects" to this industry. The attribution by this "responsible international authority", to private manufacture, of this stigma has naturally been taken very seriously by the whole world: the more so owing to its inclusion in the Covenant of the League. I therefore made an exhaustive examination of the circumstances in which the indictment was delivered and you will find that in Annex II to my memorandum, in two pages of close print, I cannot do more than summarise it. I examined every scrap of official evidence—minutes, memoranda, reports of British governments and the Peace Conference, as well as a number of memoirs. I made a good deal of use of the memoirs of Mr. Hunter Miller, who was the Legal Adviser to the American Delegation to the Peace Conference and who wrote a very accurate and detailed book which, as a matter of fact, was brought to my attention by Sir Cecil Hurst, now President of The Hague Court of International Justice, as being a valuable book on the subject, and it does contain in very convenient form the whole of the documents. The result of this investigation is, that there was not any inquiry, there was no evidence taken at all—as there are no witnesses seem to have thought—and there are no recorded discussions which throw the slightest light on the alleged misdeeds of private industry. As I think a recent witness told you, there was a feeling against Krupp. It was part of the strong anti-German prejudice that prevailed in Paris at the time, but the facts were not investigated. President Wilson took a very strong view on this question. He was in a position of great authority. And so it came about that, without any investigation, without even a "charge-sheet" or compilation of what were the supposed "grave objections" and "evil effects" this condemnation was passed. Of course, things might have been worse, because from

the very first President Wilson proposed to include prohibition of private manufacture in the Covenant itself. That is quite clear from my account. Prohibition was provided for in Colonel House's original draft of August, 1918, which was President Wilson's working basis. President Wilson included provision for prohibition in his first draft, his second draft (known as the "First Paris draft") of the Covenant, and in his third draft. General Smuts also advocated prohibition in his published pamphlet. But, though widely read, his draft was never adopted as a basis of discussion. Apart from General Smuts', none of the British drafts mentions prohibition. The Phillimore draft, which was the first, did not mention the subject. Then there were Lord Cecil's drafts which did not go beyond supervision of the arms traffic. Eventually, the Cecil draft and President Wilson's draft were amalgamated, the final version of the amalgamation being produced jointly by Sir Cecil Hurst and Mr. Hunter Miller. It contained no mention of private manufacture. At the twelfth hour just before the Commission of the Peace Conference was going to sit, President Wilson made an effort to substitute his own fourth draft, which did include provision for prohibition, for the Hurst-Hunter Miller draft, but he did not succeed and the Hurst-Hunter Miller draft, containing no reference to private manufacture, was taken as the basis of the work of the League of Nations Commission. Neither the French nor the Italian drafts which were also before the Commission mentioned the subject. Broadly then it may be said that, when the Peace Conference opened, the British view was opposed to any mention of private manufacture in the Covenant. President Wilson had included it, but there is some evidence that his delegation were not all at one with him—I mention that in my Annex—and as I have said, in the amalgamated Anglo-American draft, on which the League of Nations Commission worked, the British view had prevailed. Elsewhere there was no sign of interest in the subject. On 6th February at the meeting of the League of Nations Commission of the Peace Conference, the fourth meeting, President Wilson sprung on the Commission his original clause and secured its acceptance practically without discussion. Next day an interesting thing happened. The Naval Section at Paris presented to Lord Cecil a memorandum prepared by the British defence services. It contained very powerful arguments against provision being made in the Covenant for prohibition. You will find all the relevant passages in my Annex II. I ask you just to note in passing that the naval signatory of that was Admiral Wemyss, because I am coming back to that later. This memorandum was by the staffs of the three services and was really the first and only dispassionate examination of the subject that was made in connection with the Peace Conference, but although it has since been published in Mr. Hunter Miller's book it was never circulated at the time. You will find that it is very moderate in tone. I had forgotten it. I was interested to find when I came upon it that it supported many of the arguments that I submitted to you last time, Sir. It proved decisive. On 12th February—that is, four days after it was presented to Lord Cecil—a compromise draft very similar to the existing Article 8, paragraph (5), was handed by the Naval Section to Lord Cecil, who secured its acceptance—some amendments were made but they were not substantial—at the Peace Conference. Then later on this memorandum was given to President Wilson by Lord Cecil. That is according to Hunter Miller's account, and that is how he came to get it and how it was published. My conclusion is that there was no investigation of any sort, kind or description; that the move against private manufacture was conducted mainly by President Wilson—as I have shown, it is included in all his drafts—and he actually moved it into the Covenant at one of the meetings. The

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[Continued.]

attribution of "grave objections" and "evil effects" of private industry, which had just saved the Allied and Associated Powers from disaster, was adopted as a "compromise" between the British desire to postpone the whole subject and President Wilson's desire to bring prohibition into the Covenant; and private manufacture has remained under this stigma ever since. I cannot refrain from asking what this industry, if it was so all-powerful and so sinister as its critics have depicted it, was doing? Where was the *Comité des Forges*? Where was the alleged "unholy triangle of politics, arms and finance" to allow this stigma to be attached to them? Surely if proof was required as to the exaggerations of the evidence in this respect, it confronts us in what happened at Paris. As I said, I am not here in the least in the interests of private manufacture, but in the interests of Imperial Defence, but I do venture to say that it has been very hard on these people, contractors, managers, technical experts, workers, in this industry, who had come through the War and, as I showed last time, had rendered most splendid service to their country, and had saved the Allies from disaster, to be pilloried in this cruel way. I have had a number of letters from people thanking me, as a person in a detached position, for coming forward and doing something to remove these stigmas. I am rather touched by these letters. There is one from the widow of a great manufacturer of armaments. Evidently they have been horribly hurt by these accusations.

I pass from that, but before going on to the Temporary Mixed Commission I want to make a little digression, if I may, about Admiral Wemyss. I mentioned just now that his signature was attached to the memorandum by the British services, which was of such decisive importance and which really got rid of the clause about prohibition in the Covenant. The question is how Admiral Wemyss's signature of that document in February is to be reconciled with an allegation that has been made by some of the witnesses that the Admiral favoured prohibition of private manufacture. There is one extraordinary error in the evidence which is cleared up by a letter from Sir Oswyn Murray, the Secretary to the Admiralty, which you will find in Annex III to my memorandum. The memorandum of December, 1918, which is said to have been circulated by Admiral Wemyss and which has been wrongly attributed, I think, by some witnesses to the Admiral, was not written by Admiral Wemyss at all, it was written by a Mr. Harbutt-Dawson, whose initials it carried. It was never circulated over Wemyss's initials or adopted by him in any way. It was circulated to the Board of Admiralty as one of a number of memoranda containing points of view of subjects that were cropping up at that extraordinary period in which we were living at the end of the War.

It is admitted in Sir Oswyn Murray's letter that Admiral Wemyss originally approached the subject with a feeling against private manufacture—that is admitted—but thereafter he took part in the deliberations on the subject both of the Board of Admiralty and of the Peace-Terms Committee that the Board of Admiralty had set up, when this matter was being considered. He actually presided at the Board Meeting on 9th January, 1919, when the conclusion was reached about that Services' memorandum. Now, if Admiral Wemyss had felt strongly about this subject he could have made representations to the War Cabinet. He did not do anything of the kind. On the contrary, he actually signed and was largely responsible for the Services' memorandum, the initiative for which came from the Admiralty and which blew the prohibition clause out of the water. That memorandum is the last and latest official expression of Admiral Wemyss's views on the subject. So whatever Admiral Wemyss's original predilections—and, mark you, the Services' memorandum is very moderate—the memorandum of February, 1919, the arguments in which apply just as much to-day as they

did then, must be taken as his considered view. I trust that the Royal Commission will not be influenced at all by the allegation that Admiral Wemyss's considered view was in favour of prohibition.

I have one more historical matter to deal with, and that is the question of the allegations made in regard to the Temporary Mixed Commission. Private industry had just escaped a capital sentence at the Peace Conference. Nevertheless, as I have pointed out, it sustained rather a severe blow in the attribution of "grave objections" and "evil effects". Without being heard and without the semblance of a trial, or even a charge sheet, it had been convicted of these unfounded "grave objections". In 1921 a Temporary Mixed Commission was set up by the League to investigate disarmament, including private manufacture and trade. There have been widespread allegations that the Temporary Mixed Commission took evidence on the subject and as a result formulated "conclusions" convicting private manufacture under six specific heads. The charge has been repeated before the Royal Commission and therefore I feel that I must deal with it. It is quite untrue. No evidence was taken, and there were not any charges. This misrepresentation—which is a mild word for it—has been broadcast widely all over the world. It was included in a widely-read book by a popular author which ran through many editions, and I encountered it all over the Empire when I made my tour of the Dominions. I constantly kept running across these allegations quoted from this book. Now I am going to hand you a copy of the book, which was printed for use in schools in one of the Dominions—if you do not mind I would rather not mention which Dominion. You can see yourself from the book, of which I am so hand you a copy, if you look at the title page of the book where I have put a mark. On pages 20 and 21 of that book it says "There lies on my desk a little Report issued by the League of Nations, quite a modest document" and so on. "The League of Nations Reports are usually boring in the extreme, but this one is of so sensational a nature that, if it had received proper publicity, it would have shaken Europe." Here are the hideous accusations which it makes: "(1) That armament firms have fomented war scares. (2) Have attempted to bribe government officials. (3) Have spread false reports concerning military and naval programmes of foreign countries in order to stimulate armament expenditure. (4) Have sought to influence public opinion through control of the press"—and if you will turn to another marked page, 47, you will find it repeated. "Then let us once more remind you of the League of Nations accusations" and it repeats them. In spite of Sir John Simon's exposure of that matter in the House of Commons, the story, as I said, has actually been repeated before you. So I went into this matter in great detail last Whitehouse. I obtained every document that I could on the subject, and Annex IV to my memorandum contains the actual facts, fully documented by extracts from official reports and minutes of the Temporary Mixed Commission. I shall not trouble you with much of this. If you do not mind my reading two extracts from Annex IV, the first, is an extract from the actual published report of the Temporary Mixed Commission. (Paragraph 20 of the Annex.) This is the extract from the report:—

"The Sub-Committee is unable to-day to reach a final conclusion upon the difficult and complicated topic submitted to its consideration. It cannot at the present stage of its deliberations, either recommend the abolition of private manufacture or advise upon the particular steps to be taken to control it should it be decided that on the balance of advantage private manufacture must be allowed to continue. The Sub-Committee must then content itself for the present with indicating some of the difficulties which confront the total abolition of private manufacture and some of the

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problems which have to be faced before a complete code of regulations can be recommended should regulation ultimately be preferred to prohibition."

Now that shows that they had not reached any conclusions or made any accusations. Then I want to read an extract from paragraph 23 of the Annex. I must tell you that among the members of the Temporary Mixed Commission were representatives of a permanent League of Nations body called the Permanent Advisory Committee on naval, military and air questions. Those representatives came back to the Permanent Advisory Committee and they made the following report, or a report which includes the following. This is the extract:—

"The Plenary Commission adopted a general Report put forward by the Sub-Commission. The Report enumerates in the first instance without accepting them as the views of the Sub-Commission, the objections brought forward against Private Manufacture; then, still adopting a neutral attitude, points out—

- (a) the possible consequences which would arise from total prohibition of private manufacture, and
- (b) the measures which might be taken in order to exercise control over such manufacture."

Before I had arrived at the stage of getting all this material together, I wrote a letter to Mr. H. A. L. Fisher, the Warden of New College, who was the Chairman of the Sub-Committee of the Temporary Mixed Commission and who writes "I was to the best of my recollection largely responsible for the report." In a letter dated 23rd July, 1935, which he wrote to me he says: "It is correct to say that the statements in the report were propositions pro and con which had in fact been urged and did not represent any findings of the Committee as to their validity." I wrote also to Sir Hubert Llewellyn Smith who had helped Mr. H. A. L. Fisher with his report, and this is what Sir Hubert Llewellyn Smith says:—

"I never was Chairman of the Temporary Mixed Commission, but I attended several meetings either of that body or of the First Sub-Committee—I find it difficult to remember which. Anyhow I gave Fisher some help in drawing up the statement of objections and advantages, but I am quite certain that this was intended to be a catalogue of objections (or the converse) which had in fact been urged, and in no way represented any 'findings' of the Committee as to their validity."

I might add that I actually got corroborative information from all the other British members of that Commission, but it is unnecessary to quote them. I claim, therefore, that I have shown beyond possibility of doubt (1) that no outside evidence was taken by the Temporary Mixed Commission—I think one of your witnesses said the evidence ought to be published—(2) that the six points against private manufacture were neither "charges" nor "conclusions," but merely a catalogue of objections which had in fact been urged against uncontrolled or untrammelled private manufacture of arms, and that no endorsement to these objections was given or implied. The six points against private industry were balanced by eight points against its prohibition and the two compilations constituted sets of propositions pro and con which had been urged, but did not represent any findings of the Committee as to their validity. I earnestly trust that the Royal Commission in their report will dispose finally of this mischievous misrepresentation.

In my memorandum I have some general remarks on the character of the evidence against private manufacture. Of course, the historical background of the case which I have been developing to you has been so clouded by this attribution of "grave objections," by the unproved and unfounded charges of the Peace Conference and by the false allegations about the Temporary Mixed Commission, as to leave private manufacture in a very exposed

state. I think that the critics of the industry have taken very full advantage of that situation. The long sustained propaganda has already been referred to. One of its principal aims seems to have been to create prejudice against this industry. It is only necessary to quote the titles of the books—*Merchants of Death*, *War Traders*, *The Bloody Traffic*, *The Secret International*. Some of the witnesses before the Royal Commission have been very moderate in this matter, but there has been a good deal of prejudice all the same. Private manufacture and trade are described as "comparable to the slave trade from a moral point of view"—these are all quotations—"a predisposing cause of war"; "a menace to the peace of the world"; as involving "the constant inflaming of public opinion." I ask you to note the word "constant" because I am coming back to it presently. And so on ad nauseam. A much fuller list is in paragraph 18 of my memorandum. Then the great armaments firms are denounced as "colleagues in the supply of killing power to the world"; "engaged in the production of goods for the purpose of death"; "their interests lie in fear, insecurity and war"; "an unholy triangle of politics, arms and finance." As I say, there are conspicuous exceptions. One important witness admitted that he had changed his view in these matters. He said that, to blame the private manufacturers "seems to me unjust, it seems to be wrong, and it seems to be fallacious." I agree. The use of this language of hyperbole seems to be adopted solely to create a prejudice, but a prejudice that does create some difficulty, I think, for other witnesses. When it is remembered that the private manufacturers' main work is the supply of our own deservedly popular forces on which we depend for existence in the last resort, secondly, that much of the output is purely defensive or protective—coast defence armaments, anti-aircraft weapons, armour, and so forth, thirdly, that the industry undertakes much civilian work, this extravagant language really does seem uncalled for. I suggest also that it is prejudicial to the national interest to sling mud in this way at an industry which is an essential part of Imperial Defence. That is really the object of my remarks. It is most unfair to directors, professional staffs and, above all, to the workers, on all of whom, again, almost as much as on the troops, we may depend for our safety. It is bad for the morale of the industry, it is bad for national prestige and it is bad for Imperial Defence. Of course, I cannot conceive of any member of the Royal Commission being influenced by prejudice, but if—as I believe and hope to show—the charges are in the main untrue, I do respectfully submit that, in the national interest, the Royal Commission should express its opinion on the extravagance of the propaganda against the industry, a propaganda which really is open to "grave objections."

Owing to lack of time, I shall not detain the Royal Commission with comments which I make on the lack of balance and perspective and the vagueness of much of the evidence. Some of the witnesses admit that they cannot get the evidence they want. I can imagine why they cannot get it. Consequently, there is a good deal of resort to exaggeration, there is a good deal of inaccuracy, a good deal of misrepresentation, and, above all, of insinuation. These will become abundantly clear before I finish.

Now, may I turn to what has been described by some of the witnesses as the general case against private manufacture and trade? I summarise the general case in paragraph 33 of my memorandum. It seems to divide itself under the following heads: Public opinion; Private manufacture as a cause of war and unrest; The suggestion that private manufacturers must resort to dubious means to increase their trade and profits; And that the system inevitably involves steady pressure against peaceful policies and favours increased armaments. To these I think I ought to have added—Profit out of

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war, which I think actually appears under the detailed case. I am going to take up these points in the general case before examining the case in detail. Public opinion is the first one. I was rather surprised at this argument, which seemed to come rather oddly from some of your witnesses who have really tried very hard to prejudice public opinion. It seemed a curious argument to come from them. Public opinion, of course, is a matter which governments have to weigh very carefully; but it seems a curious argument in regard to a Royal Commission, which is appointed to assemble the facts to enlighten Parliament and public opinion and to assist the government. It seems putting the cart before the horse. It is for the Royal Commission to instruct public opinion and not for public opinion to instruct the Royal Commission. I remember Mr. Asquith always used to say that the Committee of Imperial Defence was a palace of truth, and I imagine that here, before this Royal Commission, I am in a palace of truth to try and establish facts. It would be very difficult to know what public opinion is, in view of the immense unparalleled propaganda that has taken place. The case in favour of retaining the industry had hardly been put at all until the Parliamentary debate of 1934. If the arms industry were as all-powerful as it has been represented to be by some witnesses, one would have expected some counter propaganda, but I have not seen much sign of it. What about the vast non-verbal public opinion? That includes the opinion of responsible officials actually engaged in the provision of armaments. They are probably better informed than anyone else on the many aspects of the question. You have heard a good many of them and I have been in conference with, I think, practically all the responsible officials, and I have no doubt that they are opposed to the prohibition of the industry. Beside that, the international outlook has entirely changed within the last year, and so has the national outlook. The need for reconditioning the forces was very fully accepted at the General Election. I think it would be very hard to estimate public opinion at the present time. Therefore, I am rather venturing, most respectfully, to urge that it is not an argument that should count for very much.

Now, I would like to take the next point: "Private industry as a cause of war and unrest." In the evidence I find that the industry is stated to be "a cause of war," "a predisposing cause," "an obstacle to peace," "imperilling the League of Nations," with interests that "lie in fear, insecurity and ultimately in war." These are all quotations from the evidence. I was reading through the Parliamentary debate the other night and I notice that that point was not pressed very much in Parliament by the critics of private manufacture, but it has been urged here rather strongly and so I feel bound to look into it, more especially as it is a matter which I happen to have studied a good deal in my own time. I am not an historical expert, I am much too busy to be that, but I read a lot of history and I study it rather objectively from the point of view of origins of war, aggression and so on. It is not very difficult to get together the full facts. A summary of very much more elaborate notes which I made some time ago you will find in my evidence. I do not know of any war where the existence of private arms manufacture or the machinations of arms manufacturers was a primary or secondary or even appreciable contributory cause. Since the beginning of the year I have read Mr. H. A. L. Fisher's massive *History of Europe*, in three volumes. In that you will find analyses of the causes of wars in Europe throughout the ages, as well as, of course, a great number of other things. There are a lot of entertaining bits of information about private manufacture in the past but nowhere is there any mention of private arms manufacture as a cause or contributory cause of war. And you must remember that, when he wrote that book, Mr. Fisher had been

Chairman of the Temporary Mixed Commission. Before I read that book, I had done some work on the wars of a century before the Great War—1815 to 1914. You will find some material on that subject, very much summarised, in my second memorandum. There were a great many origins and causes. There were many wars of liberation and there were what we might call wars of irredentism. The origins include propaganda by popular societies, of which I mention a certain number, in several countries; desire for expansion; access to the sea; racial and religious animosity; economic needs; and the pretexts, as distinct from the origins, varied very widely. Armaments in some wars were almost negligible factors in the origins. There were quite a number of cases where nations went to war though they had very small armaments. In some cases they were an appreciable factor, though I do not think ever large, compared with the political factors. But nowhere in the standard works that I have searched do I find private manufacture quoted as a contributory factor to these wars between 1815 and 1914. That brings us to the Great War of 1914 to 1918. The 33 years of peace in Europe which had preceded the Great War and which has been described by a competent historian as "unexampled since the Age of the Antonines" was admittedly an unquiet and apprehensive peace. There was an increase in armaments going on all the time. I think some of your witnesses have suggested that sometimes armaments deterred wars. Lord Grey attached great weight to the influence of armaments as among the causes of the Great War but I cannot find in Lord Grey's book any mention of private manufacture as a cause. I have put a lot of work into the search for the origins of the War. There are the Gooch-Temperley Papers, comprising 10 massive volumes—11 now, because another has just come out—on the origins of the War. I actually communicated with Mr. Temperley and asked if he could send me any extracts and I examined one volume myself, but it was too much to examine them all, so I asked Colonel Daniel, the head of the Historical Section of the Committee of Imperial Defence, to examine them in a detached spirit and he did so and his note is before you in Annex V to my memorandum. It was a very difficult task because the admirable and complete indexes to those 11 volumes on the origins of the War do not even mention private manufacture and trade, and Colonel Daniel's memorandum, I think you will agree, does not produce evidence of private manufacture as a serious pre-disposing cause of the War. There are some relatively minor episodes, mostly affecting what I think is generally called the arms traffic, rather than the larger question of private manufacture and trade. Then I started on the foreign papers on the origins of the War. There, again, you find many other causes and origins of the War and contributory causes mentioned. There is the influence of governments, there is the influence of the press under the pressure of governments, and of national societies; but in four or five foreign collections of official papers on the origins of the War, I did not find anything which really supported the contention that private manufacture was a cause, or a contributory cause of war. Then I tried the standard works and biographies. I have not read them all, but I read some and I asked others to read some. I have not found very much, in fact I have not found anything there. I am going to apologise to Mr. Spender, because I think I suggested that there was no allusion to the subject in *Fifty Years of Europe*. There is one very short allusion, to which I can give you the reference, but it is not really a serious attribution to private manufacture as being the cause or origin of war. Now, from this rather extensive study, I submit broadly that, reviewed in the vast complex of origins of the world war, and in the light of the innumerable predisposing causes, the existence of private manufacture and

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trade in arms and munitions of war was a negligible factor; and I suggest that if private manufacture is alleged as one of the causes of war, it is an example of the want of balance and perspective that is shown in much of this evidence.

Now I want to turn, if I may, for a moment to paragraph 54 of my memorandum, because one might conceive that even if private manufacture had not been a cause or a predisposing cause of war in the past, it might become so in the future:—

"To-day, in addition to many of the origins and predisposing causes of past wars, we have many new factors that tend to disturb the peaceful progress of mankind: vast internal upheavals in many countries; widespread financial confusion and economic depression; the springing up of systems of government of a kind almost unknown in modern times; successions of startling and sometimes tragic internal events occasioning great international misgiving, especially in adjacent countries; the weakening of treaty obligations; the use of wireless broadcasting for propaganda across territorial boundaries; the growth of militarism in many countries; large-scale re-armament; and perhaps worst of all the menace from the air. These new factors, combined with all the old causes of disturbance—secular quarrels, minority difficulties, irredentism, insoluble territorial problems, and so forth—are the real obstacles against which the League of Nations and peace-loving countries have to contend. In the vast complex of disturbing factors private arms manufacture, even if the case against it was made good in detail, would be a negligible factor. As a serious cause of unrest it is a figment of the imagination of its opponents. Its abolition would not touch the real causes of international unrest."

Sir, I am asking the Royal Commission to put this question in the broad perspective of past events and present events. It will then see what this case really amounts to.

The next feature in what is called the general case is what I have described as the alleged incompatibility of public interest and public duty. I can explain what I mean by that by quoting one of the witnesses. "The manufacturer of armaments," he says, "must desire the continuance of conditions in which there is a demand for his products; and he must be under temptations to stimulate by whatever means are open to him that demand." I quote in one of my paragraphs a whole number of witnesses who have said the same thing in different language. Some witnesses go further and suggest that private manufacture does habitually yield to these temptations in all kinds of undesirable ways. Here is what one witness said: "They are not merely scrambling for a cake of predetermined size, but they are working to enlarge the cake." There is not a great deal of evidence on this subject—as on so many others—although there is a good deal of suggestion, and I am now going to deal with that by reading paragraphs 59 to 63 of my memorandum:

"59. This unworthy suggestion that individuals cannot separate their private interests from their public duty as citizens cuts deep into civilised society. Doctors, pharmaceutical chemists and nurses depend for their profit on ill-health or disease. It would be outrageous to suggest that for that reason they try and encourage epidemic disease or are lukewarm in the promotion of public health. Companies concerned in crematoria, cemeteries, or undertakers, would make greater profits when the death-rate is high. No one in his senses suggests that for that reason they try and increase the death-rate—one must go back to stories of the great plague for that. Barristers draw their fees from advocacy in the courts, but they do not for that reason advise their clients to undertake unnecessary litigation.

60. The principle could be extended to many consumable commodities, which, though valuable in moderation, are highly deleterious, and fatal to life itself, if taken in excess.

61. Why should evil motives be imputed only to those who manufacture arms? Why should their industry alone be nationalised?

62. The truth is that, if this class of misdemeanour were found to exist in this country to an appreciable extent, to prohibit private manufacture and trading in arms would only touch the fringe of the evil."

Later on as we come down to detail I shall show that in this country private manufacturers cannot, and do not in fact, exercise influence on government policy, and that this probably applies to the nations which maintain the greater part of the world's armaments. Now this accusation of evil influences is not confined to armament manufacturers. In order to justify their attack on the present system the critics have not hesitated to cast unfounded aspersions on Cabinet Ministers, Members of Parliament and other persons. Needless to say, in no case are they accompanied by a shadow of proof. It is just an example of the insinuation which I referred to. I would like to read two paragraphs on that:—

65. Moreover, the prohibition of private manufacture would not check the evil if it existed in the government service. For example, if the manufacture of arms were a government monopoly, the manufacturer might promote an increase (say) in naval armaments in order to better the position of firms manufacturing materials or accessories for ship construction that would not be manufactured by the state factories but by outside firms. Or he might sell information to the press or to interested persons outside the government.

66. The system under which this country lives maintains a certain standard of probity throughout all classes of the population. Cases come to light, of course, where this standard is departed from: *cujusvis hominis est errare*. Nevertheless, broadly speaking, the standard of honesty is a fairly high one. The evidence against the private manufacture of and trading in arms seems to suggest that in this branch of industry a lower standard prevails. I submit that this has not been proved and that this particular argument should be rejected.

I see that the holding of shares of armament firms or firms manufacturing armaments by the general public is also attacked. They say that this is subversive to peace. One witness says this: "It is not a healthy state of things in a community when a large and on the whole influential body of men scattered all over the kingdom should have a direct pecuniary interest in war and agitations which lead to war." I do not think, Sir, that that would stand investigation. I never held a share in an armament firm in my life, but surely when a man invests in the shares of an armament company the last thing he wants is war. He knows that if war comes all his other investments will tumble down. It is very doubtful if his armament shares will rise. I asked for some figures, and I am told that between 2nd June and 30th July, 1914—I think the Stock Exchange closed after then—Vickers' shares fell one-sixteenth and Armstrong's rose one-thirty-second, and I am told that Schneider's, which were also quoted, had about the same degree of variation.

4864. Dame Rachel Crowdy: Would you give these dates again?

Sir Maurice Hankey: I took 2nd June to 30th July. I did not ask for particular dates. Those were what were given me, for 2nd June to 30th July, and I understand that after that the Stock Exchange closed and the quotations ceased.

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4885. *Dame Rachel Crowdy*: That is six weeks before the War?

Sir Maurice Hankey: 30th July—that was the time when we were running into the War. We were very near then.

4886. *Dame Rachel Crowdy*: 1914?

Sir Maurice Hankey: Yes.

4887. *Dame Rachel Crowdy*: Therefore it is the six weeks before the War?

Sir Maurice Hankey: The six weeks before the War, after the murder of the Archduke, when we were running into war. I am a child in these matters, but I thought it would be interesting to have the figures, so I asked for them. I have only just got them, as a matter of fact. Now I am going on. I said it was rather doubtful if his armament shares would rise. His general income, unless he is one of those people who make profits out of war in other ways besides armaments, will probably diminish—will certainly diminish. The government will limit his profits from armaments and they will tax his general income very heavily. After the war there will be a reaction and his armament shares will become a drug in the market. If of military age he will be conscripted. Anyhow, he is going to have a nasty, anxious time. He and his wife and family will be liable to be bombed and gassed. I suggest that the last thing that the investor wants is war. What he does want is to make money, I suppose, either by speculation or by holding a good investment. If he invests to-day it is because he has seen the shares of armament firms fall very low owing to a national policy which has deliberately brought the country's armaments to the edge of risk, and the investor wants to share in the rise to the normal, or the speculator, I suppose, wants to share in the rise to normal or above. The investor wants to get the increased dividends which result from a new policy which he as a taxpayer has to pay for. Very likely he also thinks that the strengthening of his country's defences is going to increase its influence for peace. Peace is the desire of every sane person, and I suppose the average investor is a sane person. Surely, Sir, that is the common sense of that matter.

Well, then we come to the last item, which is profit out of war—the last item in the general case. It is a catchword, this "profit out of war". It is a kind of leit motif running all through the general case against private manufacture. It seems to me to be just a term of prejudice. Surely more accurate terms would be "profit out of defence", "profit from deterring aggression", "profit out of protection". That has a less sinister ring and is much more in accordance with the facts in a country like this, with its strong instinct for peace and collective security, and so forth. And then, as I have pointed out, there is not likely to be very much profit out of war in the future, and I think a good many people realise that. Even other people's wars are not very profitable taking it all round; they cause grave international anxiety and hamper trade and depress markets, and so on. Then on this question of "profit out of war", I would like to point out that the profits are by no means confined to armaments; they are made out of raw materials, steel, non-ferrous metals, merchant shipbuilding, merchant shipping, coal, oil fuel, food supplies, some textiles, boats, motor transport, medical and surgical supplies, boilers and engines, electrical goods, railway material, and a host of other articles. The abolition of private manufacture would only just touch the fringe of the problem of war profits, and I suggest that profiteering has to be dealt with not by abolition of private industry but on very much broader lines.

To sum up on the general case I would now recapitulate the various sub-divisions into which it is divided. The argument of public opinion has been shown to be rather inapplicable to a body appointed largely for the purpose of instructing public opinion. The argument that private industry is a predisposing cause of war has been rebutted by an examination of

causes and origins and pretexts of war over more than a century. It has been shown that in the past private manufacture has never been a serious factor and that this is even more true to-day when a mass of possible predisposing causes are examined. The assertion that manufacturers of arms must and do yield to temptation to increase their business by malpractices is shown to be a generalisation which can be used against an immense range of careers and professions, and to be inconsistent with the general standard of honesty on which the country is run. If it were true that armament manufacturers were exposed to temptations and must yield to them, it is equally true of many other professions. Profit out of war has been shown to be a term of prejudice which can be applied to scores of industries, and must be dealt with not by abolishing one industry but by comprehensive measures. I feel that in the light of those observations not very much remains of what is called the general case, and I think still less will remain after the case has been examined in detail, to which I now turn.

In dealing with this case in detail I have marshalled the evidence as far as I could under six heads into which the allegations against the industry were grouped by the Temporary Mixed Commission, and the first of those groups is "Fomenting War Scares and Dissemination of False Reports". I am taking two points of the Temporary Mixed Commission's grouping:—

Point 1.—"The armament firms have been active in fomenting war scares and in persuading their own countries to adopt warlike policies and to increase their armaments."

Point 3.—"That armament firms have disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armament expenditure."

Those charges have been repeated again and again throughout the evidence, and at last we come to the case of the overworked Mr. Mulliner, who is called upon to illustrate both the accusations that I have read. He has not only got to be an illustration for two examples, but his is the only pre-War example of those alleged activities of the firms. So short are the critics of illustrations under these two heads that no less than six of them have mentioned Mulliner, and two have mentioned him on the other side. I am the third. He appears on the stage to-day for the ninth time; so I felt bound to go into this case in some detail. I have worked in very close collaboration with the Admiralty, and the facts, which have not been stated in full by any witness up to the present time, will be found in a memorandum prepared by the Admiralty in Annex VI to my memorandum, and if you do not mind, Sir, I will now read some passages from my own memorandum beginning at paragraph 78:

"It will be seen that Mr. Mulliner was concerned in two distinct episodes or, if it is preferred to put it differently, that there were two distinct phases of the Mulliner episode.

79. The first episode, from 1906 to 1909"—
few of the witnesses mentioned that he began in 1905—

"concerned a period when Mr. Mulliner was engaged in giving information to the Admiralty and to the government, mainly as to the increase that was being carried out in Germany's capacity to manufacture heavy guns and mountings which would render possible an acceleration of her naval programme.

80. The second episode concerns the political controversy which broke out later in 1909 and culminated in the general election of 1910, in which the case of Mr. Mulliner played a part. In this controversy mention was made in public of the fact that during 1909 Mr. Mulliner had been compelled to resign his post as managing-director of the Coventry Ordnance Works, and complained that he had been victimised."

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[Continued.]

Now I make some remarks on the first episode—paragraph 81:

"Presumably no one would be inclined to blame Mr. Mulliner for bringing his information to the government in 1906. Any patriotic citizen, who in the course of his business or otherwise, acquires information on any subject which he believes to be correct and to bear on the interests of his country, has surely the duty of passing it on to the government, so that it may go into the general pool of intelligence on which the government have to base their decisions. I have no little doubt that there are members of this Royal Commission who have from time to time given the government information on subjects within their own range—though not on armaments: It is a very common practice, and it would be a great loss to the government if this close intercourse between the government and private business of all kinds came to an end."

I want to stress that point, because it would be a terrible thing if, because Mr. Mulliner had been accused of fomenting war scares, people who did in the course of their business obtain information that was useful to the government were to be deterred from giving it to them.

"As will be seen from Annex VI the information that Mr. Mulliner gave in 1905 was confirmed from other sources and proved correct." I am aware, Sir, that you have had other evidence that did not support that, but I am prepared to support it—I could support it now; I have the material under my hand—but I think if you would put that off till the afternoon you will be able to get it, so to speak, from the horse's mouth. If you prefer that course I will go on reading:

"The fact that he was the representative of an armaments firm did not, I submit, except him from the patriotic duty of notifying his information to the government. Mr. Mulliner himself did not conceal that he wanted orders for his firm, but he maintained that he only wanted to tender for these in fair competition, and he repudiated suggestions that he was only making these statements to induce the Admiralty to place orders. Whether Mr. Mulliner overplayed his hand in portering the government too much does not appear to bear in any way upon the questions before the Royal Commission."

Moreover, it will be seen from the account in Annex VI that Mr. Mulliner's information related not to the number of ships that Germany had laid down, but to her capacity for manufacturing gun mountings, one of the 'hotbeds' in the construction of warships, and that the information was confirmed from other sources. Further, that the increase of four Dreadnoughts to the government's programme of 1909 was based on information besides that of Mr. Mulliner."

That also was true.

"In the Admiralty's memorandum it is pointed out that 'Had the four ships not been built, we should have fallen seriously below the superiority which it was the policy of the government to maintain.'

In any broad review of the reasons which led to that increase the Mulliner episode played a very small part. It is not, so far as my researches go, even mentioned either in Mr. Churchill's account (*The World Crisis*, 1911-1914), nor in Mr. Lloyd George's *Memoirs*, nor in the *Life of Lord Oxford and Asquith* (J. A. Spender and Cyril Asquith), the pertinent extract from which is attached in Annex VII."

Now there are some remarks on the second episode.

"The second episode, which relates to Mr. Mulliner's public activities, was concerned very largely with his alleged victimization. The

Admiralty's account says that Mr. Mulliner apparently had felt aggrieved by the neglect to act upon his information, and particularly aggrieved that his firm obtained no orders for gun mountings. There seems no doubt that he had communicated his information to the Opposition."

I give my grounds for these statements in the footnotes—

"and it may be due to this fact that his appointment at the Coventry Ordnance Works was terminated. It appears clear also that no substantial orders were given to the firm so long as Mr. Mulliner remained managing-director."

So far as I have been able to ascertain, apart possibly from his communications to the Opposition, he did not play a personal part in public controversy until 2nd August, 1909, on which date a letter from Mr. Mulliner appeared in *The Times*. From that letter it transpired that he had already left the Coventry Ordnance Works, for he speaks of 'my then capacity as managing-director of the Coventry Ordnance Works,' thereby indicating that he no longer occupied that position. From that time on his position, therefore, was that of an ordinary citizen taking part in an election controversy. Whether he had terminated his connection with the Coventry Ordnance Works when he gave information to the Opposition (or press) I have been unable to verify.

Mr. Mulliner was warmly defended by his friends at the time. Lord Cawdor, the then late First Lord of the Admiralty, went so far as to say 'he thought Mr. Mulliner deserved the Order of Merit!'

Of course, that was an election speech, I think.

"Mr. Duke, now Lord Meivale, defended him in Parliament on 16th March, 1910. Without going into merits, it is pertinent to ask whether, in the light of after events, Mr. Mulliner or his detractors had more right on their side as to the need for building more ships."

To sum up, I submit:—

(i) That in giving information to the Government from 1906 to 1909 Mr. Mulliner was doing no more than his duty as a British citizen; that he would have been failing in his duty had he not done so:

(ii) That the information he gave in 1906 as to Germany's increasing capacity for manufacture of guns and mountings proved to be true, and consequently he was not disseminating false reports or fomenting a war scare."

I have looked up the word "scare" in the dictionary and I find that it is an "imaginary alarm." Well, it was not an imaginary alarm. Another dictionary says, "a purely imaginary or causeless alarm," and it was not a purely imaginary or causeless alarm.

(iii) That there is no evidence that Mr. Mulliner ever said that Germany would have 17 (instead of 13) Dreadnoughts by 1912. All he said was that, so far as guns and mountings were concerned—one of the 'hotbeds' of capital ship construction—Germany had the capacity to accelerate. The Admiralty decided in 1909 to build the four extra Dreadnoughts on the basis of information other than Mr. Mulliner's. Whether the Germans had accelerated by 1912 or not is immaterial to the story, as Mr. Mulliner never claimed to know that they would. He only claimed that in certain important respects they could. As a matter of fact, however, the extra Dreadnoughts proved necessary, for, as events turned out, our strength in Dreadnought battleships and armoured cruisers was short of our declared policy of superiority over the German navy.

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[Continued.]

(iv) That in pestering the Government to the extent he did, and perhaps in revealing to the Opposition the information he had given to the Government, Mr. Mulliner was undermining his own influence—to the point that, according to his own account, he lost his job. This tells against the theory that his only object was to get orders for his firm:

(v) That the part he played in the newspaper controversy in the autumn of 1909 and in the campaign prior to the general election of January, 1910, does not bear on the story, as by that time Mr. Mulliner had ceased to be managing-director of the Coventry Ordnance Works and was no longer in a position to obtain orders: it is clear also that he was by that time a man with a personal grievance:

(vi) That, as shown by the parliamentary debates and the press of 1909, the question of the four additional Dreadnoughts had become a political one of the first magnitude. "We want eight and we won't wait" was the political slogan. One great political party was gravely concerned, as were many other people, including some members of the Cabinet. Mr. Mulliner was a negligible factor, and the armament firms as a whole seem to have taken no active part in the controversy:

(vii) That, in the vast complex of origins of the War and disquieting tendencies between 1906 and 1914, this one episode that has been produced as evidence of activity by British armament firms in fomenting war scares is negligible."

Well, there is just one point, I think, I must add. One of your recent witnesses said that the armament firms generally had given information to the government about German developments. I have said in my paper which I just read that they have not.

4968. *Sir Philip Gibbs*: Admiral Bacon stated that.

Sir Maurice Hankey: That other firms had?

4969. *Sir Philip Gibbs*: Yes.

Sir Maurice Hankey: I thought that Mr. Lloyd George said it too.

4970. *Sir Philip Gibbs*: Yes.

Sir Maurice Hankey: I did not know that Admiral Bacon had.

4971. *Sir Philip Gibbs*: Admiral Bacon did, you will find in the evidence.

Sir Maurice Hankey: I have been making all the inquiries I could, and the Admiralty told me that so far as they are concerned it is not accurate, and that no other armament firms tendered evidence on that point.

4972. *Chairman*: You mean giving information?

Sir Maurice Hankey: Well, stirring, fomenting, urging the government. I think we are on a different point.

4973. *Sir Philip Gibbs*: Oh, yes; Admiral Bacon did not say that they fomented anything but he said they had information, the main part of their information, from the armament firms with regard to the re-arming of the German navy.

Chairman: Sir Charles Craven said he had only recently given information to the Admiralty. I understood him to say so.

Sir Maurice Hankey: About this episode of 1909?

4974. *Chairman*: Oh, no, no.

Sir Maurice Hankey: I have said, of course, that information comes from all sorts of people and I made a plea for that. I am afraid all this is a misunderstanding, and that I may have expressed myself rather badly. I think that Mr. Lloyd George said that Mulliner's was not the only armament firm who were stirring things up and making the government anxious about the situation.

4975. *Chairman*: I do not know that he confined it to armament firms. I think he said that there

were other people, but Mr. Mulliner was the worst. I am not sure. I am only speaking from recollection.

Sir Maurice Hankey: I have not got the evidence in print yet; it has not reached me or else I would have given you the quotation; but I saw it in the newspaper. At any rate, the Admiralty told me that so far as they were concerned there were no other armament firms making any move.

4976. *Chairman*: You are speaking of 1909?

Sir Maurice Hankey: I am on 1909 all the time, and I have not been able to obtain any confirmation that that was the case. I have no recollection of hearing of it. I was, of course, in the Committee of Imperial Defence at the time and I was kept pretty well in touch by Sir Charles Oatley, who was my chief, very closely in touch. I have not the slightest recollection of ever hearing of anyone except Mulliner mentioned during those discussions that were taking place—any representative of an armament firm besides Mulliner. Now apart from Mulliner there are not any pre-war examples in the evidence under these two heads. There is one post-war example. One witness spoke of Mr. Fairry, an interview published in the *Daily Mail* on, I think it was, the 3th January, 1934. Well, my suggestion is that Mr. Fairry was not fomenting war scares by disseminating war reports, because it was public knowledge at that time that certain countries were increasing their armaments, and, as the witness who raised this matter himself admitted, the *Daily Mail* and the *Daily Mirror* had already been conducting a campaign, and as a matter of fact, months before Mr. Fairry's letter the government, were anxiously considering the deterioration of the international situation, the growth of armaments abroad and its effect on our own armaments, as Mr. Baldwin mentioned in the speech I quoted in Annex IX to my memorandum. I suggest, therefore, that the interview was not a case of fomenting a war scare, because as I said just now a definition of a war scare involves an imaginary or causeless alarm, and that was not the case here. I also suggest that the influence of any remarks that Mr. Fairry might have made was quite negligible compared with the other influences which were actuating the government or the people of this country. I would like to conclude that bit of my evidence by reading paragraph 93 of my memorandum.

"In this connection, the following note supplied by the Air Ministry has an important bearing."

This is their note: "As regards (3)—that is the allegation that armament firms had disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armaments expenditure—

"As regards (3) the Intelligence Division of the Air Staff state that no evidence has ever come to their notice of British armament firms supplying false reports to the Air Ministry in regard to the armament programmes of other countries. Armament firms are, indeed, usually without very much information about the trend of Service air developments in foreign countries. It is in any case altogether improbable that this, or indeed any, country's armaments programme would be stimulated by false reports furnished by armament firms as to what other countries were doing. A programme of expenditure is based on something sounder than uncorroborated information from private sources, and is not approved and put into execution in such haste that a scare, if it were a false one, could not have been unmasked before it was too late. Certainly no British air armaments programme has ever been adopted as the result of information, whether correct or false, furnished by armament firms. There is no evidence, whatever, so far as the Air Ministry is concerned, for this particular allegation."

Now let me recall that I called your attention to the indictment that armament firms have been active in fomenting war scares and to the allegation of the constant inflaming of public opinion.

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[Continued.]

The only evidence of these active and constant processes is Malliner, and the trifling case of Mr. Fairry, and in both cases the charge has failed. Had the charges succeeded I should have been able to show that any influences private manufacture might be able to exert in these directions are negligible compared with other agencies fomenting war scares and publishing false and tendentious information such as the press of some countries, foreign propaganda, books, pamphlets, educational curricula in some countries, speeches, and, above all, the actual course of events. Moreover, all these adverse influences would still operate even if you abolished private manufacture and substituted government monopoly. You would gain absolutely nothing.

To sum up this great block of evidence of fomenting war scares and disseminating false information comprising one-third of the categories formulated in the list of the Temporary Mixed Commission, the case for abolition of private manufacture has completely broken down.

Now I come to interference in disarmament conferences, which comes rather close to the other, though it was not mentioned in the Temporary Mixed Commission's list. There is one admitted example and that is Mr. Shearer, who certainly tried to interfere in a disarmament conference. The Admiralty gave me a short note of that in Annex VIII to my memorandum, and they showed that Mr. Shearer's activities did not in fact affect the result. The conference was rather a foregone hope from the first. I remember that myself. Now I myself am rather an old inhabitant of international conferences, and I have always been in a particularly central position, either as secretary-general or secretary to the British delegation, and you may like, therefore, to have my experiences. Well, the first big conference I was at was the Paris Peace Conference, and, as I have said, the industry did not, and to the best of my knowledge never tried or made the smallest effort to prevent the stigma of grave objections and evil effects. Then I was at a disarmament conference at Washington in 1921 and 1922, probably the most successful there has ever been, in the amount of disarmament that it achieved. I have not the slightest recollection, and I have not been able to get any trace, of any interference by armament firms, though in that particular conference they were going to lose tremendous orders. I dare say you remember that the British government had decided on four new super-dreadnoughts. They would have been the largest ships ever built, and the conference cut the construction to two ships of 35,000 tons—two capital ships. That was a tremendous loss to the armament firms, but I cannot remember the slightest interference or representation being made in the conference. Now at the London Conference in 1930, which was another successful disarmament conference, so far as I can recollect—in fact I am quite sure—there was no interference or attempted interference by armament firms; and during the recent London Naval Conference it was just the same. I never heard a hint of any activities by the armament manufacturers. I have consulted a good number of delegates and officials and some very experienced people about Geneva, and they tell me exactly the same thing, and I suggest that the Royal Commission does not accept stories of that kind unless they can be supported by actual evidence. There is a tremendous lot of tittle-tattle and insinuation about these things. On the other hand, some of the organisations who are opposed to private manufacture are extremely active at these conferences. They bring deputations to Ministers, they bring in enormous petitions. I have had several of those under my charge—great huge rolls brought into the conference. They influence the press. They have special observers who lobby ministers and officials. I do not know what would be said of the armament manufacturers if they did these things. It is apparently quite legitimate for those who aim at disarmament, even unilateral

disarmament, to carry on these activities, but not legitimate to those who consider that peace is best preserved by adequate armaments. Now we come to the most unpleasant part—

4877. *Chairman*: Before you part from Shearer, are you suggesting that Shearer was not active?

Sir Maurice Hankey: Oh, no. He was active—active but ineffective.

4878. *Mr. Spender*: Shearer was not an armaments firm man, was he?—He was shipbuilding or steel industry.

Dame Rachel Crowley: Employed by the steel industry.

Secretary: The Bethlehem Steel Corporation. *Chairman*: The evidence we have had is that he was very active. Whether he had any effect or not is another matter.

Sir Maurice Hankey: Well, then, it is clear that the abolition of private armaments manufacture would not necessarily remove that particular objection, because the steel people might still send their Shearers. It seems rather to strengthen the case. Quite frankly, I thought he did represent armament groups.

4879. *Sir Philip Gibbs*: I do not think so.

Professor Gutteridge: It was the Bethlehem Steel Works.

Sir Maurice Hankey: I thank you for the correction.

4880. *Secretary*: I think that is an armament firm. *Chairman*: We have got it here somewhere.

Professor Gutteridge: I think that the line of division is a little blurred between shipbuilding companies and steel works.

4881. *Secretary*: Oh, yes, it was definitely armament. *Chairman*: It is in your Annex VIII.

Sir Maurice Hankey: Then I stand corrected, Sir. Now the next is the very unpleasant business of bribery and corruption, and that is point 2 of the Temporary Mixed Commission's group, "That armament firms have attempted to bribe Government officials, both at home and abroad." I do not think there is any evidence offered against British firms of attempting to bribe officials at home. The observations in my memorandum, therefore, are confined to a brief exposition by which policy is arrived at in this country before orders can be given by the Service Departments. It is shown there that it would be impossible to achieve any result from bribery, but I think it would be rather laborious for me to go over that now as time is getting along; and I think also you have had some evidence from the Services on this point.

4882. *Chairman*: Yes.

Sir Maurice Hankey: On bribery abroad, the evidence against British firms of bribery abroad is, I think, confined to a single case about a quarter of a century ago, where the bribe is said to have been given not to increase the armaments but to secure an advertised order from a rival British firm. I cannot throw any light on that case.

4883. *Chairman*: Yes; except the fact is that there were two trials. The admiral was tried, Mitsui, and then the persons who were concerned with distributing the money were tried, and you have extracted, if you will allow me to say so, the wrong judgment. You have extracted in your annex the judgment in the second case and not the judgment in the admiral's case; but we have got a copy of the whole proceedings in the admiral's case.

Sir Maurice Hankey: I only put in this judgment. It does have some bearing on the argument I am trying to make. The argument I am trying to make broadly is, that bribery is a thing that ought to be dealt with in the country concerned; and here it was so dealt with.

4884. *Chairman*: Yes; the admiral was punished and these other people were punished; and it also appeared in the proceedings that it was not a case of inducing a government to order a ship, but the bribe was given, if it was a bribe, in connection with the

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[Continued.]

question as to whether the specification of Armstrongs should be accepted or that of Vickers.

Sir Maurice Hankey: Yes, I did not follow up the other case. I happened to light upon this and I thought it might be useful to you, so I sent it in. Then there are one or two examples of bribery by agents of foreign firms abroad mentioned in the evidence, but the facts would be very difficult to establish and I do not think you are taking evidence on such cases. The real issue on the question is whether you would cure the evil, so far as it exists, by prohibition of private manufacture. By unilateral prohibition you would secure nothing, firstly because bribery is probably not resorted to by British firms to-day, and secondly, because you would simply be handing over business to foreign countries and incidentally removing a source of war potential valuable for ourselves. By international prohibition of trade in arms you would simply transfer the risk of bribery to governments. You have no guarantee that governments would not bribe in countries where bribery is permitted. The manufacturing states would have strong inducements to get the business, as I explained at my last appearance, for instance, to keep strong state industries going, to increase their war potential, to avoid an increase in the war potential of rival states, to increase their political influence by securing dependence of non-manufacturing countries upon them, and to lessen the political influence of rival manufacturing states. I think there would certainly be a scramble for the orders for non-producing states by manufacturing countries for those and other causes, and if you assume, as the case against private industry does, that some foreign governments can be bribed, you must equally assume that some foreign governments might bribe. There have undoubtedly been instances of bribery in the foreign press, for instance, by foreign governments, and it is notorious that that has not ceased to-day. So how can you assume that governments would never bribe other governments or the press of other countries to get armament orders? Then apart from cruder forms of bribery there are other forms of inducement open to governments which have often been mentioned in this country—easy terms of payment and loans, rebates, commercial support, mutual assistance bargains, alliances, even. Such things are not unknown. In Annex XI to my memorandum I gave you a 30-year old instance taken from the British documents on the origins of the War. I would like just to finish that section by reading paragraph 129 of my memorandum.

"To sum up—it is suggested that questionable commercial methods of securing markets and increasing trade can probably be found to exist in some countries in connection with the sale of most commodities. Experience shows, moreover, that the methods pursued in any country reflect to a large extent the standards of commercial and public morality that exists there. If, for instance, the allegation referred to by the Temporary Mixed Commission in 1921 that the bribery of government officials is a practice of private armament firms is true in any country, it is probably because bribery is condoned by the standard of conduct there in force. The evil, even so far as armaments are concerned, will not be eliminated by abolishing private trade in arms. In the main the cleansing of this, as of any industry, depends upon the pressure of a healthy public opinion in the country concerned."

You see I am trying all the time to say that these are not arguments really for abolishing private manufacture, that being the point to which my whole evidence is directed. Well, then there is the employment of British ex-government servants in private manufacture. You had evidence of that yesterday, I think, did you not?

1885. *Chairman:* Yes, but I was rather struck when I saw here that the objection is that a person in office might be induced, by the hope of being employed by an armament firm, to give preference to that firm.

I had rather understood up to that time that the objection was that the officer would be probably enabled to get orders for his firm because of his friendship with somebody in office. It is a different form of objection; but I see the objection as formulated here is the first I named.

Sir Maurice Hankey: Reading the evidence, that is what I understood.

1886. *Chairman:* Perhaps it was my mistake.

Sir Maurice Hankey: That is what I understood to be the objection. It may be my mistake. Well, as usual there is no specific evidence on this point. No actual charge has been preferred against any individual and there is not a scintilla of evidence that any harm has ever resulted. It is another example of the sort of vague insinuation which forms so large a part of this evidence. The main safeguard against this kind of thing is the high standard of the public services, in regard to which I attached as Annex XII to my memorandum an extract from the report of Sir Warren Fisher's Committee of a few years ago; but the safeguards in the public service would probably make this malpractice impossible in any event. On the other hand, there are undoubted advantages in this practice, especially in time of war. They help co-operation by providing throughout firms a sprinkling of people who know the requirements of the defence services and, so to speak, talk their language. As Sir William Jowett puts it, "You cannot run an armament firm if its directors and management are—what shall I say?—a lot of lawyers". Among the experts that I met on board the *Queen Mary*—the experts of the different firms, and, of course, there were a vast number of firms engaged in that construction—I met several who had been in the services and who were working there very closely with service experts in other work. As an illustration of how innocuous such appointments are, I draw your attention to the Bren machine-gun, which as I mentioned last time is the invention of a foreign firm. Now that gun was adopted against the competition of a rival weapon produced by a British firm whose chairman is a former Chief of the General Staff and one of the directors of which is a former Master-General of the Ordnance. Then British ex-officials are, of course, employed by a great many firms besides those manufacturing armaments but which do business as government contractors; and so long as a great many officers have to be retired in the prime of life on very small pensions it would be very unfair, very hard on men to debar them from earning their livings in a sphere to which they are best suited. It would be a great loss to the services and to industry. I do not think that really is a serious argument for the prohibition of private industry.

Then we come to influencing the press, point 4 of the Temporary Mixed Commission. "That armament firms have sought to influence public opinion through the control of newspapers in their own and foreign countries". I am not sure that that is not rather a boomerang on the opponents of the arms manufacturer, because they can hardly deny that they try to influence public opinion through the press, and they could hardly complain if the manufacturer retaliated; but I am not sure that there is any evidence that he does retaliate in the press. The only point in the evidence I have seen on this was Mr. Noel Baker's suggestion that the technical aviation press opposed disarmament and that those papers are dependent on aviation firms for advertisements; but I am assured by officials whose business it is to study the technical press that they are independent people and that they frequently attack both the Air Ministry and the manufacturers. In any event, the influence of these technical journals (whatever it might be on technique I do not profess to know) on policy and on wider public opinion is very small indeed. Now this is rather interesting. I am going to read a piece of paragraph 133 of my memorandum, because this is evidence in support of this idea.

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[Continued.]

"Among the examples of the supposed misadventures of the technical aircraft press is cited an advertisement which appeared in *The Aeroplane* of 18th July, 1934, of a British aircraft of Service type—it was actually a British Bulldog—which was shown with swastika marking and which Mr. Noel Baker assumes was exported to Germany while we were still contesting that country's right to have an air force (10th Day, p. 234). The machine in question was actually supplied to Finland, which also flies the swastika, but with the arms reversed, so that the whole point of the reference to this case falls to the ground."

Here is another case. Mr. Noel Baker refers* to the fact that a foreign power was allowed to manufacture under licence one of the latest and fastest British fighters, the "Gaudet," and says it is a strange paradox which requires explanation that we should thus let a potential enemy have the benefit of our inventions. It sounded rather serious. When I went into it the explanation was very simple. The country concerned was Denmark, which is hardly a potential enemy, and the machine in question, though it was a modern type which had not been long in production, had an inferior performance to the latest improved type, the "Gladiator," and had been allowed to go to Denmark. Well, I rather think the evidence you received from the firms manufacturing armaments was to the effect that the amounts spent on the press here were very small. These are suggestions in the evidence of the press activities of foreign manufacturers. Of course, that would be very hard to prove or disprove. Once again I make an appeal to the Royal Commission for perspective. Supposing the armament interests abroad do control a certain number of newspapers, what is their influence compared with other influences on the newspapers? Take authoritarian governments. Several of them exercise complete control over the whole of their own press. They can operate it like a barrage of fire to work up public opinion in any direction they want. They also exercise a very tight control over the importation and sale of foreign newspapers. Now how can the control by a private firm or even a group of firms compare with the influence exercised there?

* Minutes of Evidence, 10th Day, p. 238

(Adjourned for a short time.)

On resuming:—

Sir Maurice Hankey: I was just starting to deal with soliciting or touting; I was remarking that it was rather a characteristic term used by the opponents of this industry to describe efforts to secure orders. These terms, with their sinister echo of the street and the police court, seem to be wrong language to use of a British firm which, having something to sell—probably purely defensive equipment—tries to get orders. I suggest an "attempt to secure orders" is the better term. Touting, I think, cannot be at all a serious factor in the world's armaments, because the larger orders, which, of course, are given by the greater powers, are put up to tender both by our home government and by other governments with large armaments. The whole subject was dealt with very effectively in Major Hills' evidence, which I quote in full in my memorandum. It is shown there that touting is not even a serious contributory cause of armaments, and secondly, that nations arm not because they are solicited but because they require defence. You would not get rid of touting by prohibiting private manufacture. Governments, which would replace the private firms if they were abolished, would manufacture for other governments, in accordance with Article 8, paragraph (5), of the Covenant, and they would certainly try and secure those orders, for reasons which I have already given more than once. Probably some governments would maintain regular agents attached to their

And even in democratic countries how does the influence of arms manufacturers on the press compare with that of, say, political parties or individual proprietors or groups of newspapers, individual statesmen, in some cases governments, any or all of whom, for patriotic or other reasons, may wish to see their country's armaments increased every bit as much as the manufacturers? If governments and the mass influences are against armaments, the armament firms are not going to make the slightest difference. If governments and the big newspaper interests think the time has come to increase the armaments again, the amount of influence that the armament manufacturer can exercise upon the press is very small indeed. Now I will just read paragraph 138, which sums up my conclusions under this head.

(i) That against British private manufacture no case has been made out of influencing public opinion, through the control of newspapers at home or abroad, though the weapon of the press has been resorted to by its opponents in order to bring about its downfall;

(ii) that the case against foreign private manufacture, unavoidsably perhaps, is vague;

(iii) that the tendency of the evidence on this point is, as usual, out of perspective, since the influence that could be exerted on public opinion through the press by armaments manufacturers is very small compared with that of other influences;

(iv) that the prohibition of private manufacture and the institution of government monopolies would not prevent this alleged evil, since there have been many instances of governments who have sought to influence public opinion through the control of newspapers in their own and foreign countries, and might resort to this method for obtaining orders for their state armament industry;

(v) that, in countries where the press is venal, the proper corrective is to be found in exposure and the creation of a healthy public opinion—a matter for the governments concerned."

Well, then, there is soliciting or touting. That is not mentioned by the Temporary Mixed Commission. It is a rather characteristic term of prejudice used to describe what, after all, ought to be described as attempts to obtain orders.

embassies and legations in countries where they thought it worth while. Of course, touting would be very much more serious if carried out by governments than by private firms, because it brings with it a dreadful added complication for diplomacy. There is some evidence in my memorandum of governments having touted. For instance, out of the volumes on the origins of the War it appears that the German Emperor in 1912 urged the Russian Minister of Marine to place his shipbuilding orders in Germany, and I notice that Mr. Mulliner made an allegation that the Kaiser used his influence in Turkey to secure orders; but, of course, I have not any confirmation of that and I do not, therefore, attach too much importance to it. I would just like to read one paragraph on that subject, to wind it up. It is paragraph 144.

"The evidence already given before the Royal Commission, supplemented as above, gives a fairly answer on the question of solicitation, namely:—

(i) that British firms are very little implicated;

(ii) that, if the matter is put into perspective, the solicitation of armament firms is not a serious contributory cause of unrest among nations;

(iii) that the cure rests with governments themselves; and

(iv) that this particular alleged 'evil' would not be eliminated and might be aggravated by government monopoly."

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[Continued.]

I come now to the last two points of the Temporary Mixed Commission's list. Both of them deal with armament rings and trusts.

Point 5. "That armament firms have organised international armament rings through which the armaments race has been accentuated through playing off one country against another."

Point 6. "That armament firms have organised international armament trusts which have increased the price of armament to governments."

There is rather an inconsistency in the evidence on this point, because when firms which manufacture armaments work independently then the critic complains of the evils of competition, bribery, touting, and that kind of thing. When the firms get together—which should eliminate any evil of that kind—they are accused of forming "rings" and "trusts" (whether national or international); of "playing off one country against another," and of increasing "the price of armaments to governments." Why is it an offence—I do not know—for armament manufacturers to form trusts? This is only rationalisation, and rationalisation is constantly being promoted by governments all over the world, the objects being to eliminate waste, scrap redundant machinery, reduce overheads, eliminate unnecessary competition. Firms manufacturing armaments are also concerned in other forms of manufacture. How can they be expected to stand out of what is pretty well a universal movement? Surely it is natural that a large user, and perhaps also a manufacturer of steel, both for armaments and for purely peaceful products, should be closely connected with the general steel industry; or, in the case of a firm like I.C.I., which mainly manufactures civilian products, it is natural that it should rationalise itself for its paramount civilian side. I am more doubtful whether rationalisation is an advantage to Imperial Defence. Of course, to the extent that it may produce greater efficiency it is an advantage but I am afraid the rationalisation which was caused by shortage of orders did result in a considerable reduction in war potentialities, and from that point of view it is not an advantage. But concentration in this form is preferable, in post-War conditions, to competition for a very limited market in which all the manufacturing concerns would have collapsed. It did preserve a good deal.

The next item that I deal with is the accusation—not in the Temporary Mixed Commission's list but in the evidence against private industry—of prolonging wars and supplying both sides. The main illustration given is in regard to Bolivia and Paraguay, the war between those countries. An account of that episode is attached in a memorandum prepared in the Foreign Office (Annex XIII to my memorandum) and I am just going to read its conclusion, which is to be found in paragraph 154 of my memorandum.

"It will be seen from the above that it is unfair to place any responsibility for the prolonging of the war between Bolivia and Paraguay upon British armament firms. Such arms as they exported to the belligerents were exported under licences obtained from His Majesty's Government. The latter, moreover, far from encouraging the export of arms, were the first to suggest an embargo and actually imposed it themselves without awaiting similar action by other governments. In so far as the war was 'outlawed' by the League of Nations, such action (in the form of approving the embargo) was taken some considerable time after His Majesty's Government had already imposed an embargo and when the supply of British arms to the belligerents had already ceased."

That is the reply on Bolivia and Paraguay. Another critic, one of your witnesses, says that "Armaments provided by some firms being used by both sides in a war is a very repulsive condition produced by this particular industry". Well, it may be repulsive to that particular witness, but not, I

imagine, to the fighting man whose life depends upon his supplies of war material, nor to the nation whose existence depends upon those supplies. To some people it is even more repulsive to see a country overrun, its cities bombed and sacked, its civilian population exposed to the horrors of invasion and bombardment. That is the reverse side of what Lord Cecil calls "the emotional aspect". You would not get rid of this evil, if it is an evil to supply both sides, by prohibition of private manufacture and trade. Under Article 8 of the Covenant the manufacturing states would have to supply the needs of the non-manufacturing states. If both belligerents happened to be purchasers in peace from the same manufacturing power, presumably they would be entitled to a continuance of supplies in war. In my view, however, their supply from governments, as I said last time, would always be very precarious, and if one of the belligerents was able to manufacture for himself and one or more of the others could not manufacture, he would always win. Of course, it would be a very peculiar position if you abolished private manufacture, in respect of the laws of neutrality, because under the laws of neutrality whereas a state can allow private manufacturers to supply belligerents, they cannot supply from their own factories or resources without a breach of the laws of war. It is in Convention No. XIII—"Convention concerning the rights of Neutral Powers in Maritime War". I shall not read it—partly because it is in French—but I can hand it in.* That is the gist of it. If you abolished private manufacture I suppose you would have to alter the laws of neutrality, otherwise a non-manufacturing state which was at war could no longer go to its ordinary source, which is private manufacture, and get its supplies. The whole of the neutrality business has, I think, become extremely complicated. Modern war seems to take place without an outbreak of war and one is never quite sure whether states are really at war or not. So I do not pursue that thesis.

4887. *Professor Gutteridge*: May I ask from what the document that you have just handed in is extracted?

Sir Maurice Hankey: It is indicated at the top. It is Convention No. XIII.

4888. *Professor Gutteridge*: Is it Hague Convention No. XIII?

Sir Maurice Hankey: Yes. You as a distinguished international lawyer know much more about it than I.

4889. *Professor Gutteridge*: I only wanted to make quite sure it was No. XIII of the Hague Convention.

Sir Maurice Hankey: Yes. It is rather a complicated situation, the neutrality business.

4890. *Professor Gutteridge*: The whole question of neutrality is very much in the melting pot.

Sir Maurice Hankey: It is very much in the melting pot, I agree. I am not sure that the point is worth mentioning. From the point of view of supply, possibly even of both sides, the present position, if not perfect, appears preferable to state monopoly.

Now I come to the last of the detailed charges against the industry, which is in respect of its alleged inefficiency. Here again I come to one of those curious inconsistencies in the evidence against private manufacture. Most of the witnesses suggest that private arm manufacture is too efficient to be allowed to live. Other witnesses—I am not sure that they are not the same witnesses—suggest that it is so inefficient that it ought to be abolished. Their argument is that by substituting state monopoly everyone would get better armaments and more for the money. If that is the hypothesis, state monopoly is obviously a policy of "bigger and better armaments". Fortunately, neither of these hypotheses is true. Private manufacture is not so sinister nor

* See Appendix B, p. 755.

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so powerful as some of the witnesses have made out, nor is it so inefficient as others suggest. Much of the argument about inefficiency was disposed of in my evidence on the 8th May. If private manufacture were inefficient the service departments would be bound to take the matter up. They are the real judges, because they have the criterion of the state establishments to judge from, and they are the users of the goods, so they are the only people who are really competent to make the comparison. Inefficiency would be a difficult thing to establish, because it is so very much a relative term. In post-war years, when everything was cut down, when the government armament orders were small, it is not unlikely that both the private and the state manufacture declined in efficiency. To-day, with increased orders, the efficiency of both is probably much greater. I do not say positively they did decline. I only say one would have expected them to decline rather than for them to have quite the latest thing in machinery. Of course, there have been a great many inquiries—I know some of them have been mentioned in evidence before the Royal Commission—into the efficiency of government manufacturing establishments, and the government as a rule has been urged by its critics to adopt the businesslike methods of private firms. I dare say you remember the Pemberton-Billing inquiry during the War. From Mr. Lloyd George's second volume, which I have here, I could quote you many pages of strictures on the failure of the War Office, and certainly one on the Ordnance Department. I do not think that any case can be made against the efficiency of the private firms.

That concludes my observations on the detailed case. One way or another I have examined about a score of different accusations against private industry and I have shown that for the most part they have not much validity. I have examined all the examples of alleged evils on which I was in a position to shed any light. There are other examples—especially, I think, those from the American Inquiry on which I could not pretend to throw any light at all, I could not gain any information really—and I think in all but one case the examples I have taken show that they fall to the ground. A great many of them are shown to be curious misunderstandings—perhaps not unnatural misunderstandings—like the case of the Finnish aeroplane with the swastika, the aeroplanes sent to Denmark, and so on. The one exception is a case in which the British manufacturer was not concerned at all. That is the Shearer case. It has been pointed out to me this morning that I made a mistake there and that Shearer was representing not armament firms but steel firms, who, however, might have been affiliated to shipbuilding firms. In that case, as I have pointed out, the abolition of private manufacture would not get rid of the alleged evil, because steel manufacturers and people who manufacture all sorts of accessories might very easily do the same thing. Anyhow, one swallow does not make a summer.

My last word is this: I should like to ask the Royal Commission to apply their minds to the moral issue in the following manner. First, to consider the total business done by the firms manufacturing armaments. Second, to deduct from the total the proportion of business of a purely civilian character to which these accusations do not apply. I think in all firms except Vickers that would be a very large proportion. I do not know what proportion it is of Vickers. Third, to deduct the business done on behalf of the British Government, the Dominions and Colonies and India, in which, broadly speaking, these accusations have not any validity. Fourth, to deduct the business done on behalf of the countries where corruption does not operate any more than it does in this country. Fifth, to deduct the business done on behalf of countries where, notwithstanding that the moral standard is believed to be lower, the conditions of a large proportion of the contracts do not lend

themselves to corrupt influences—e.g. business in connection with the carrying out of programmes already settled and put out to tender and so forth. Sixth, to consider what the residue of business is, after all these deductions have been made, within which corrupt influences might be exerted. Seventh, to consider, in the light of the evidence, including my own, how far corrupt influences have been proved to exist in this very restricted sphere. Eighth, to consider how the corrupt influences that are proved to exist compare with other influences predisposing nations towards war and so forth. That is the point that I have been trying to make all the way through, that these alleged evils, taken either individually or collectively, are negligible compared with the vast influences of every sort and kind which in fact are disturbing to the world. Ninth, to consider carefully how far the alleged "grave objections," reduced to their proper proportions, would be removed by prohibiting private manufacture and trade, either nationally or internationally, and substituting government monopoly. In a word, whether in seeking to avoid a largely imaginary danger, or at any rate a very small one, you are not running into a very real aggravation of the international situation. Finally, I suggest that, if you think that anything remains of the moral case against this industry, it must be weighed against the terrible danger—developed in my evidence a fortnight ago—to which abolition of private manufacture and trade would expose our country—the country which exercises the strongest influence for the peace of the world. My conclusions are actually summarised in Part VI, the "General conclusion" at the end bringing it to a head. I do not wish to trouble you by reading it. You have probably read it already.

4891. *Chairman*: Have you not added to them in your last statement, in which you make eight or nine deductions?

Sir Maurice Hankey: Yes; I merely tried to sum up at the end of my statement.

4892. *Chairman*: It is rather difficult to follow until one sees it in print.

Sir Maurice Hankey: Yes, I am afraid it is.

4893. *Chairman*: That is all you wish to say?

Sir Maurice Hankey: That is all I wish to say, Sir.

4894. *Chairman*: I want to ask you about one point. I do not know whether you have considered our position under the terms of reference. Have you the terms of reference before you? They seem to have been framed deliberately. Do you see No. (2)?

Sir Maurice Hankey: Yes.

4895. *Chairman*: We are not asked to consider whether any of these alleged evils exist.

Sir Maurice Hankey: No.

4896. *Chairman*: We are asked "To consider and report whether there are any steps which can usefully be taken to remove or minimise the kinds of objections—". That seems to put us in the position that we are not to decide the point but we are to assume that they exist, and on that assumption we are asked whether we can devise any remedies. And I believe that was deliberately done.

Sir Maurice Hankey: I did not know that you were intended to assume that objections existed. Because it is contrary to almost everything the government has ever said. I began my evidence by giving the answer to the League of Nations questionnaire, an answer to a question in the House of Commons, a reference to the government's attitude in debates, etc., and there has never been any admission, as far as I know, by the government officially that there were objections.

4897. *The Chairman*: I do not think this can be taken to be an admission on the part of the government but it shows, I think, that they are taking a neutral attitude so far as we are concerned. It was very interesting, the information that you gave us, as to what actually happened and how it came about

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that these six evils were introduced, but, after all is said and done, we have to deal with it on the footing of the terms of reference, have we not?

Sir Maurice Hankey: Am I not correct, Sir, in saying that you have heard an immense amount of evidence—in fact I have quoted masses of it in my memorandum—to show you what a lot of evils there are, and what a lot of heinous features, in this industry? I claim that it is all ridiculous.

4898. *Chairman*: We have deliberately adopted the rule that we would allow people, within certain limits, to tell us what they thought about these matters, without reference to whether their observations were directly relevant. Of course, now we have all the matter before us and we have to consider our report we shall have to consider whether this evidence which we have received is really relevant. That is the difficulty we are in. I only wanted to point it out to you because you are inviting us to come to a deliberate decision on a matter which seems to me, at the moment, to be rather outside the terms of our reference.

Sir Maurice Hankey: It certainly would not be appropriate for me to interpret your terms of reference, but I have my position too, Sir, because I have been afraid that the way you would interpret it might—

4899. *Chairman*: If you can put any other meaning to it please do.

Sir Maurice Hankey: I was afraid that, after all the evidence that you had received denouncing this industry, you might feel that the moral case was so strong that the way you would recommend it to be dealt with was by prohibition. Almost my sole point is this, that I have a perfect terror of the abolition of the industry, because I think it would be a very great disaster to the particular branch of national affairs in which the main part of my work is done, namely Imperial Defence. All this case having been made against the industry I felt bound to examine it, and when I examined it I found that a great deal of it was either wrong in fact—and where I think it is wrong in fact I have tried to give the correct fact—or else wrong in reason—and where I think it is wrong in reason I have tried to put the matter in perspective. Of course, if your report contains nothing about that case that has been built up against the industry, it cancels out with my case, but I did feel that I could not let that go, for fear the Royal Commission should be so impressed with the moral case that they might make a recommendation that I thought disastrous.

4900. *Chairman*: I follow. For the moment I did not appreciate that possible consequence in your mind.

Sir Maurice Hankey: That was entirely my trend of thought.

4901. *Chairman*: You envisage the possibility of our saying all this is established and is true and therefore the only remedy is a drastic one?

Sir Maurice Hankey: That is the result I dread.

4902. *Chairman*: I did not follow that.

Sir Maurice Hankey: It depends upon the amount of objection. I thought the punishment would fit the crime.

4903. *Dame Rachel Crowdy*: I asked you the other day, when you had dealt with your first memorandum, some questions about the footnote to paragraph 103. You remember you said you would be grateful if I would leave it until you discussed the second memorandum.*

Sir Maurice Hankey: Yes, I remember the note.

4904. *Dame Rachel Crowdy*: I can read the note. I only wish to make a very short reference to it. The note which I read aloud the other day is this:

* See Minutes of Evidence, 20th Day, Q. 4405.

"Since this was written a study of the evidence of 'grave objections' to and 'evil effects' of private manufacture has been made in a second memorandum, and it has been shown that the whole case against private manufacture is non-proven and greatly exaggerated, and that the alleged 'evils' would not be removed by government monopoly."

Now obviously it would be quite improper for me to enter into any discussion on that particular note of yours, not only because I am a member of the Commission but because up to the present time we have not received all our evidence, but I do feel, Mr. Chairman, that perhaps one could say that Sir Maurice, in spite of his vast historical experience, really does not seem to be quite in a position to make such a categorical statement. He is, obviously, not in possession of all the evidence that has been given before this Commission, he has not seen all the evidence that is before us, and I think he himself states in some part of his second memorandum that he has not found it possible to study the American documents. Now, as you remember, Sir Maurice, those American documents have a great many references to cases in connection with British firms, and I feel that for anyone to make quite such a firm statement without all the evidence which has been at the disposal of this Commission, whether you are right or wrong, is perhaps going rather far. I do not propose to go into any discussion, obviously, on the rights or wrongs of private manufacture, but I would like to make that one comment.

Sir Maurice Hankey: May I make a reply on that?

4905. *Dame Rachel Crowdy*: Yes, do.

Sir Maurice Hankey: I have read every word of the evidence which has been published. I have not only read it; I have marked it, underlined it, and at the top of every page, as you could see from my copies in the room if you looked through them, I have put a little index of the contents of that page. That is every bit of the evidence that has been put at my disposal, a great many hundred pages, and a very terrible job it has been. It has tried my eyes rather; but I have really tried to master the evidence and to absorb it.

4906. *Dame Rachel Crowdy*: I quit, believe that. My point was only that all the evidence had not been at your disposal; that was really the only point I was making; and it seemed to me to be rather a firm action to make a statement of that kind that everything had been disposed of until all the evidence had been before you as well as ourselves.

Sir Maurice Hankey: Perhaps it should be said everything at my disposal. Everything that is at my disposal is at the public's disposal.

4907. *Dame Rachel Crowdy*: Sir Maurice was at the Peace Conference and I was not, and I am sure no one knows more than Sir Maurice what happened. We only have in contradiction of what he has said about it, as far as I remember, Mr. Lloyd George's statement that Article 8 of the Covenant was included, because it was generally felt not only by the Big Four, I think he said, but by many people at the Peace Conference that this evil—this is in quotation marks—"that the evil of private manufacture had come to the surface during the War." But, as I say, Sir Maurice was at the Peace Conference and I was not, and we have only these two points of view; but as far as the Temporary Mixed Commission was concerned—

Sir Maurice Hankey: May I answer that.

4908. *Dame Rachel Crowdy*: Yes, do.

Sir Maurice Hankey: I was of course at the Peace Conference and very much at the heart of the Conference. Nobody outside the three or four principals saw quite as much as I did of it, because I was the recording secretary of that Council of Four, and I have got immensely full records. I also have diaries. There is no mention of this subject ever cropping up at all. I have very grave doubts as to whether M. Clemenceau, for instance, would

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have agreed to prohibition if President Wilson had managed to carry it. He was a tremendous realist, and he would think of the French defence first and last, and I do not think he would ever have taken that view, and there certainly was no sort or kind of discussion on the subject. The subject may have occasionally cropped up in private conversation, but I think the real truth is that President Wilson was rather set on this thing. He was in quite a unique position; he had a position of tremendous authority, and nobody else really took any interest in the subject at all. It was just one item in one commission dealing with one subject. After all, it was only one item in disarmament; disarmament was only one item in the Covenant, the Covenant only one item in the Peace Conference. It was a complete side-show and the reference to private manufacture never would have gone in to the Covenant, nothing about it would have gone in if it had not been for President Wilson's enthusiasm. That is absolutely certain. Our people were rather opposed to it, and so in the manner that I have shown they managed to eliminate prohibition and to get it reduced, as a quite deliberate compromise—there is not the slightest doubt about that—to its present dimensions. It was really a one-man affair. However, I am sorry; I am afraid I have interrupted you, Dame Rachel. I apologise.

4909. Dame Rachel Crowdy: No, not at all. Well, when we got on to the question of the Temporary Mixed Commission, I am particularly interested in that because I was at Geneva at the time, as you know, on the staff, and although I did not attend the Paris meeting of the Temporary Mixed Commission I did attend a good many of the meetings of the Temporary Mixed Commission. It had a great opportunity of talking to delegates, mixing up with press men and hearing the points of view of members of the secretariat at the time. Now my feeling the whole time then—and it is still the same—was that there is a very clear distinction between the six points and the additional eight points—the six points which we might say were against private manufacturers, and the eight points which were against abolition. As far as I remember it—in fact I am supported—I have asked several people about it—those first six points, although as you say they were not put forward as the unanimous recommendation of the committee to which the sub-committee reported, there is no doubt that not a single member of the Temporary Mixed Commission implied for a single moment that there were not certain evils attached to private manufacture; I think it was quite universally agreed that there were evils; whereas when you got to the question of the abolition of private manufacture, the people who were against the abolition, the eight points one might say, only some members of the Temporary Mixed Commission were definitely against abolition, and I wanted to ask Sir Maurice two things really: first of all if he agrees with me that it is true that no member of the Temporary Mixed Commission denied that evils existed. That is my first question.

Sir Maurice Hankey: My recollection of the minutes, which I have read two or three times, is that they were denied quite definitely, I think it was by M. Hodacs.

4910. Dame Rachel Crowdy: No, that comes in connection with the eight points, not with the six.

Sir Maurice Hankey: No; I think he denied that the evils existed.

4911. Dame Rachel Crowdy: Not that certain evils existed, I am sure. He was not in favour of the abolition of private manufacture; and that brings me rather to my second question—

Sir Maurice Hankey: I certainly do not think everybody, I do not think all our representatives—I have either talked to or been in communication with all our representatives there—I do not think they would all agree to what you say. I do not think so.

4912. Dame Rachel Crowdy: I will leave that for a moment, if I may, and go back to that later. My second question is this: Do you know who was the proposer of the eight points, who was the leader of the people who objected to the abolition of private manufacture, because that I remember so distinctly, and I wondered if you had any recollection?

Sir Maurice Hankey: Well, I do not know how to pronounce his name. It was M. Hodacs.

4913. Dame Rachel Crowdy: Quite.

Sir Maurice Hankey: You probably know how to pronounce it. I think probably he was a Czech-Slovak.

4914. Dame Rachel Crowdy: He was a director of Skoda. The man who raised all the objections to the abolition of private manufacture was a director of Skoda, so therefore certainly the feeling among the members of the commission at the time and certainly of the press at the time was that perhaps his strong attitude might to some extent have been influenced by his private interests; and therefore as far as I recollect those two categories of *pro* and *con* were never put on quite the same footing.

Sir Maurice Hankey: Well, you heard the extract I read from the minutes of the Permanent Military Commission this morning.

4915. Dame Rachel Crowdy: Yes, I did.

Sir Maurice Hankey: Does it not look from the tone of that as if they agreed in this? The tone of that was very much emphasising—

4916. Dame Rachel Crowdy: Have you got that paragraph? Can you give me the number?

Sir Maurice Hankey: It is in Annex IV to my memorandum, paragraph 22, "The Plenary Commission adopted a general report put forward by the Sub-Commission. The report enumerates in the first instance, without accepting them as the views of the Sub-Commission, the objections brought forward against private manufacture; then still adopting a neutral attitude, points out . . ." and so on. Well, I do not think we can get away from that. There is that report, and there are my letters from Mr. Fisher and Sir Hubert Llewellyn Smith, pretty definite; and I have had confirmatory letters from several others.

4917. Dame Rachel Crowdy: My point really, Sir Maurice, was this. What I was trying to press was that those two categories were not put on quite the same footing. I am not assuming or stating that those first six points were put forward as the unanimous opinion of the sub-committee; I am not trying to maintain that, but I am trying to show that they are on a rather different footing from the final eight points.

Sir Maurice Hankey: I cannot find the smallest evidence of it in anything I have read about it.

4918. Dame Rachel Crowdy: Well, as I say, it is according to my rather good recollection of the whole subject and the fact that, as I remember it, no one spoke officially in the committee against the existence of the evils of private manufacture, and a great many people spoke against the Hodacs point of view.

Sir Maurice Hankey: I have read all those minutes through, and I am bound to say they did not give me the least impression of there being really any difference between them.

4919. Dame Rachel Crowdy: Well, since that time in fact the Temporary Mixed Commission for many years after took those six points as the basis of all their discussions, did they not?

Sir Maurice Hankey: Not as proved or admitted objections, not in the least.

4920. Dame Rachel Crowdy: But as a basis of discussion throughout all their meetings, as far as my recollection goes.

Sir Maurice Hankey: I have taken them myself to-day. I do not think there is very much in that.

4921. Sir Philip Gibbs: On this point Colonel Carnegie, who was a member of the Temporary Mixed Commission, made a statement a little while ago which I should like to quote to you. He said: "There

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was no doubt in my mind that the evils enumerated by the sub-committee of the Temporary Mixed Commission were understood to have existed, and the subsequent efforts of the Temporary Mixed Commission were directed to prevent such evils from being continued. During the years that I was a member of the Temporary Mixed Commission I do not recollect that any doubt was cast, at least in discussion, upon the findings of the sub-committee."

Sir Maurice Hankey: I wonder how much memory is worth 15 years old. You see, I am not sure that memory does not depend a little on the man's point of view. I do not really trust my memory. I told you this morning that I could not recollect something or other about Mulliner in 1909. I have a good memory but I do not really trust my memory, because when I come to consult documents and diaries and that sort of thing I often find that I have got rather a wrong impression after all; so I would much prefer to take the actual records which I have quoted and the memory of the man who drafted the report after all, which is something.

4922. Professor Gutteridge: I do not see Colonel Carnegie's name amongst the names you give in Annex IV.

Sir Maurice Hankey: I give a list of members only.

4923. Professor Gutteridge: I was just looking at it. Is his name there?

Sir Maurice Hankey: Ah, that might not be so. It is curious how at those League committees different people dodge in and out. You know, I started by writing to all the people in that list who were British. I began with Captain Segrave. Well, I found that Captain Segrave, half-way through, had got another appointment, and somebody or other took his place. No, it was Admiral Calthorpe first; that was it; and he could only carry on for about two meetings, and then Captain Segrave and then somebody else, and then there was a Commander. I wrote to the whole lot. I have the confirmation of the whole lot; I have them under my eye at this moment; and it is quite possible, you know, that Colonel Carnegie was there in some junior position helping somebody.

4924. Mr. Spender: He was a Canadian.

Sir Maurice Hankey: Yes; he was probably helping the Canadian delegate.

4925. Dame Rachel Crowdy: Would you turn to Part III of your memorandum, paragraph 29? You say the attitude of His Majesty's Government was defined in 1925, when in reply to a questionnaire prepared by the Co-ordination Commission of the League of Nations it was stated that—

"So far as this country is concerned the British Government are not aware of any grave objections of a national character. As regards objections of an international character, the British Government do not know of any that are peculiar to private manufacture."

Can you tell us how the answer to that questionnaire was proposed, what department prepared it, or if it went to the Cabinet, if it went to the Prime Minister before it was sent to Geneva? Who was responsible for the preparation of the answer? It would be very interesting to know.

Sir Maurice Hankey: I cannot say positively for that particular answer, but I can tell you the sort of procedure that would be taken. There would be a British representative who deals with these sorts of things at Geneva. It might have been Sir Alec Cadogan. I do not know. Well, he naturally, whoever he was, would not answer a question like that on his own responsibility. He would send it round to the Admiralty, the War Office, the Air Ministry, the Board of Trade, possibly the Treasury, and there it would be passed round, and all the sections of each department that knew about these things would see it. It is not a thing of great urgency; you can take your time over it.

4926. Dame Rachel Crowdy: Having been at the Geneva end I know!

Sir Maurice Hankey: You know how these things are done. Then it would come back to the Foreign Office, and then they would draft a reply on the basis of the material, and possibly send it round before it went out. It would be very carefully done.

4927. Dame Rachel Crowdy: Would it go to the Cabinet?

Sir Maurice Hankey: No, I do not think so. I do not recollect it. I could easily check that.

4928. Dame Rachel Crowdy: It is merely rather interesting to know how these things are prepared.

Sir Maurice Hankey: Yes.

4929. Dame Rachel Crowdy: Then in the same paragraph you talk of the attitude of the Prime Minister on this question. You quote the Prime Minister at that time. That was Mr. Baldwin, was it, or Mr. Ramsay MacDonald?

Sir Maurice Hankey: That was Mr. Ramsay MacDonald. Yes, he was Prime Minister and he answered Mr. Mitcheson's question. I do not think I say anything else about him.

4930. Dame Rachel Crowdy: No, you just give a quotation showing that the Prime Minister had caused inquiries to be made, and as a result he was able to say that the answer was in the negative.

Sir Maurice Hankey: It is merely a quotation from Hansard.

4931. Dame Rachel Crowdy: Yes, and that is merely a question of whether British arms manufacturers have sought improperly to influence the policy of His Majesty's Government.

Sir Maurice Hankey: Yes.

4932. Dame Rachel Crowdy: That has nothing to do with whether the British Government is recognising or the Prime Minister is recognising the existence of evils, is it? It has nothing to do with that.

Sir Maurice Hankey: No—except so far as rather a bull point among the alleged evils is that one of fomenting policy and influencing the government, points 1 and 3 of the Temporary Mixed Commission's list. To that extent it does bear on evils.

4933. Dame Rachel Crowdy: It is one of them.

Sir Maurice Hankey: It is two. It is two out of six, so it is substantial.

4934. Dame Rachel Crowdy: I ask this in view of two speeches which I have here, one by Mr. Baldwin and the other by Mr. Ramsay MacDonald, because I rather got the impression from you that both the Prime Minister and the last Prime Minister felt that these evils did not exist. Well, I have here a speech by Mr. Baldwin in which he is talking about state manufacture and private manufacture, and he said, "Would state manufacture get rid of the corruption that is alleged in connection with the sale of armaments to certain countries?" He goes on to say that the government would have to employ thousands of men, and then he ends up by saying that "the only method of dealing with these undoubted malpractices of which they had allegations, and in some cases even proof, lay in control, and control could be exercised." Therefore we can assume from that, I think, that Mr. Baldwin did and does believe that these malpractices exist.

Sir Maurice Hankey: I ventured to put the question to Mr. Baldwin.

4935. Dame Rachel Crowdy: This is in the Times.

Sir Maurice Hankey: I have a much fuller report here. I have the one in one of the Scottish papers. It was delivered in Glasgow, you will remember.

4936. Dame Rachel Crowdy: This is the Glasgow speech.

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Sir Maurice Hankey: And he authorised me to deny that this could be interpreted as meaning that he considered generally that there were grave objections and evils to private manufacture, and he pointed out that a very large part of his speech was devoted to showing the evils which would arise if you had government monopoly.

4937. *Dame Rachel Crowdy:* And that is why I read out the whole paragraph beforehand so as not to make it one-sided; but he does definitely speak of malpractices which have been proved.

Sir Maurice Hankey: Yes, but it is just a little doubtful whether that refers to the malpractices proved in the case of private manufacture or whether it is the malpractices proved in the case of governments, because, of course, there have been malpractices in the case of governments which he referred to. I am quite satisfied that he did not intend it as a sweeping condemnation of private manufacture.

4938. *Dame Rachel Crowdy:* I have here a quotation from Mr. Ramsay MacDonald's speech made about the same time:—

"I shall never forget, when I went down the Dardanelles immediately after peace, we saw the guns that had been owned and operated by the Turks lying broken in their emplacements pointing towards that shore where our men landed and hung on to so long by their eyebrows. On those guns was a brass label bearing the name of a British armament firm. The private armament industry, we all know, is not the best thing that can be done. We know perfectly well its danger. We know that some, but certainly not all, of the competition that is carried on in that industry is bad and unavowable. Moreover, it is very often means arming against ourselves."

I thought perhaps I ought to read those two speeches as they rather bear on what we are discussing.

Sir Maurice Hankey: There are some other interesting things in that speech too:

"If I could abolish armaments to-morrow, away they would go. But I cannot. I have got to accept armaments which I hope will diminish—and which I work day and night to diminish—and I will accept no defeat in that matter. But while they are there we have got to devise the best way to handle the problem. There are only two ways. One is to nationalise the whole of your armament production. That means that the state itself must build factories. Having built them, if we could manage it, those state factories would not have enough to do to keep them at work. That means state capital, which should be spent on social services, sunk in those factories, and staffs enlisted for irregular employment, with a tremendous increase in casual labour. That is not a proposition which any practical politician would countenance on any account whatever. The alternative is that which this Government is carrying out. We must control the trade."

So that whatever the first part of the speech—

4939. *Chairman:* What were you quoting from then?

Sir Maurice Hankey: I was quoting from the same speech as Dame Rachel.

4940. *Chairman:* After an interval?

Sir Maurice Hankey: After an interval, yes.

4941. *Dame Rachel Crowdy:* Then I do not want to take up all the time because we all of us have many questions to ask, I know, but there was one other thing I wanted to refer to. *Sir Maurice,* your paragraph 59 seems to me, if I may say so, too frivolous for the general seriousness of your document. When you compare doctors, pharmaceutical chemists, nurses and undertakers with the arms manufacturers, is it really a very good comparison? After all, surely doctors and nurses are vocational and we do not imply that the arms manufacturers are vocational, but as far as undertakers were concerned, if they made themselves clients too quickly

probably their life would be a very short one. Do you really feel they are analogous?

Sir Maurice Hankey: I do not really quite know the meaning of the term "vocational" in this connection. I do not think I quite understand.

4942. *Dame Rachel Crowdy:* I feel that your dictionary that is so useful would give you a very good definition.

Sir Maurice Hankey: Yes, I often have it out. I am sorry if the particular cases I have chosen are thought bad, but of course my point seriously is that I think these people are no different in their moral code from all the rest of the world, the members of the Royal Commission and myself and the lookers-on. I think they are just average men and that it is not right, as quite a number of those witnesses have tried to do, to treat them as though they were on a lower plane of morality altogether. One witness says so. I have quoted him. I do not know that I can put my finger on the paragraph, but I have quoted him. He says in a superior way that these people are on a lower plane because they deal with this horrible business of armaments. Well, naturally you will not expect me to agree in that view because I have a great deal to do with them myself.

Dame Rachel Crowdy: I have no more questions.

4943. *Mr. Spender:* I suppose we should all agree that every system, aimed, for whatever object, has certain characteristic weaknesses and abuses. You would not say that the private manufacture of armaments is exempt from those, would you?

Sir Maurice Hankey: I am not trying to make out that the private manufacturers of armaments are plaster saints at all. I am merely suggesting that they are exactly the same as anyone else in that respect; but I think that if you adopt a different system you are really only going to get into a new trouble.

4944. *Mr. Spender:* Well, we have had a good deal of evidence suggesting to us points on which the system might be amended, points on which it is open to suspicion and objection, points on which, if one reads the American report, there is conclusive evidence that it has led to misconception and suspicion. You would agree that there is room for—quite short of extinguishing private manufacture—possible room for safeguarding and controlling, we will say, the export of armaments, which would be an improvement on the present system?

Sir Maurice Hankey: That may be. I have devoted practically the whole of my attention to the negative point of view of trying to present to you the disadvantages of prohibition. I have not really devoted my mind very closely to improvements, but I do think this, that you may run into great dangers, very great dangers—never mind; I am trying to give you a quotation, and I cannot put my finger on it.

4945. *Mr. Spender:* Let me take one point just to illustrate what I am thinking of. It does seem, on the face of it, a rather haphazard way of establishing the liaison between the government and the private firms to let the private firms choose officers, so to speak, at random, officers from the services, and appoint those whom they prefer. Of course, it is quite evident that all that you have said about the necessity of the two things, of the government and the private firms keeping touch, is true, but when we come to look at it in practice, to secure that by leaving it to the private firms to appoint ex-officers at their own will and discretion seems a very haphazard way, an imperfect way of establishing that kind of contact.

Sir Maurice Hankey: Of course, they cannot pick out an officer and say "I want that man out of the service". I suppose they could approach the officer and ask if he would care to come, but it does not mean that the officer will accept, and it does not mean that he will be allowed

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to retire, necessarily. Do you remember my predecessor, Sir Charles Otley?

4946. *Mr. Spender*: Oh, indeed I do.

Sir Maurice Hankey: You remember he went to Armstrongs. Well, a long time elapsed during which it was being considered whether he would go or not, but he was a retired officer, and so he was his own master in that respect; but I do not think that just any officer, a rising young officer that was asked to go to an armament firm would go. I think the service would probably refuse to let him go. If he had a good career in front of him he probably would not accept to go; but it is really a matter of arrangement, and the vast majority are retired officers.

4947. *Mr. Spender*: I do not want to press that particular point. It is one which naturally does interest us. In general, Sir Maurice, your evidence is extremely interesting to us, and if we do not cross-examine it all you will not suppose that we have not got ideas in our minds, and that we accept it all.

Sir Maurice Hankey: Oh, no, it is the last thing that would enter my head that a Royal Commission should accept because they do not examine. I only ask, and I ask very humbly, that the considerations that I have put before you will be fairly weighed, as I am quite certain they will, with other considerations and different points of view.

4948. *Mr. Spender*: I think your communication has been most enlightening to us in many respects.

Sir Maurice Hankey: Thank you very much.

4949. *Mr. Spender*: May I just ask one or two points? The everlasting Mulliner case—if I understand you aright, we both have been through it at the time?

Sir Maurice Hankey: Yes, Sir Oswyn Murray, the Secretary to the Admiralty, is here—

4950. *Mr. Spender*: Oh, I simply wanted to put it into form. You see, we have had Mr. Lloyd George upon it, and we have had you upon it, and if we can just clear it up and get it out of the way it might be useful. Your view is that substantially, whether the Admiralty got its information from Mr. Mulliner or from its own Intelligence Department, or whatever was the case at the time, its intelligence was accurate?

Sir Maurice Hankey: Yes.

4951. *Mr. Spender*: Would I be wrong if I said that the accuracy of its information has since been confirmed by the German documents?

Sir Maurice Hankey: I could not confirm that.

4952. *Mr. Spender*: Well, I think that is so.

Sir Maurice Hankey: I could not confirm that, but I can produce some evidence that did confirm the truth of Mulliner; but I am not sure if Sir Oswyn Murray would not do it better.

4953. *Mr. Spender*: At the conference at Berlin, much to the embarrassment of the German Ambassador, who had been instructed to tell us that there was nothing in this score of ours, it was revealed to the Ambassador that there was another programme in contemplation. He had been instructed to tell us that there was nothing in contemplation beyond the programme of 1908. It was then laid out to him that there was another programme in contemplation, and that the gun mountings were no doubt for the second programme, so this second programme required a second programme on our part, which was the programme of 1913. Now, we came to the conclusion in the autumn of

1913 not that our previous programme was excessive, but that it was not enough. Is not that so?

Sir Maurice Hankey: I think so.

4954. *Mr. Spender*: That was so. There was the programme of 1914. The programme of 1909 had actually to be added to.

Sir Maurice Hankey: You remember we were to have a 60 per cent. margin. That was the approved margin over the German fleet, and we actually had got below that.

4955. *Mr. Spender*: And no one could say that we had an excess of battleships?

Sir Maurice Hankey: No, not possibly.

4956. *Mr. Spender*: That was the case up to the Great War, that we had the 1909 programme alleged to be manoeuvred by Mulliner that had to be added to by another one at the end of 1913, and the two together were not found to be excessive when the War came.

Sir Maurice Hankey: Yes.

4957. *Mr. Spender*: That would be true, would it not?

Sir Maurice Hankey: That is true. I do not know if I am going to be asked any questions about Mulliner, but I did rather refrain this morning from confirming that statement.

4958. *Sir Philip Gibbs*: I rather wanted to ask you one or two questions about that.

Sir Maurice Hankey: Very well, then I will reserve the point until I am asked.

4959. *Mr. Spender*: There is one point more that occurs to me. It has been suggested to us that the money spent on Dreadnoughts, which was diverted to Dreadnoughts owing to Mulliner, ought to have been spent on destroyers, cruisers and minor craft. There was no kind of alternative idea, was there, in those years, in either 1909 or 1913?

Sir Maurice Hankey: No, there was not an alternative at that time.

4960. *Mr. Spender*: There was no choice between the one and the other?

Sir Maurice Hankey: No; I think it is perhaps that looking back in the wisdom of after events the witness you quote thinks the money would have been better spent. It is a very arguable proposition. You see, the fleet was our great mainstay against invasion, and invasion then was taken rather seriously. Well, when the War broke out there was the great question whether the Expeditionary Force should be allowed to go abroad, and, as you know, four divisions went first, and then before the end of August a fifth division, and then another division a little later, and I think if those extra battleships had not been there Lord Kitchener, who was always a little anxious about invasion, probably would have hesitated; and what effect that would have had on the course of history I do not pretend to say, but it would certainly have had a great effect on the government's decision at that time.

4961. *Mr. Spender*: And also, broadly speaking, unless we had had this supremacy in battleships it would not have been of much use to have the minor craft?

Sir Maurice Hankey: No. I personally agree with you. Of course, there is always room for difference of opinion.

Mr. Spender: That is all I have to ask.

4962. *Sir Philip Gibbs*: Shall I take that point about the Mulliner case?

Sir Maurice Hankey: Yes. I am not sure that you had not better address it to Sir Oswyn Murray, as he is here.

Sir OSWYN A. R. MURRAY, G.C.B., Secretary to the Admiralty, called.

4963. *Sir Philip Gibbs*: May I ask you whether the information which Mr. Mulliner gave to the Admiralty amounted in the first instance to the fact that he had seen four or five planing machines and one rather special lathe? Did it amount to more than that?

Chairman: I think that is the evidence.

Sir Maurice Hankey: I am not sure, really, that that point is not answered in Sir Charles Otley's memorandum.

Sir Oswyn Murray: The first information which Mr. Mulliner brought to notice in 1906, was

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in a letter addressed to General Haddon, who was then Director of Artillery at the War Office, which mentioned that Krupp had filled up the output of all the big machine tool makers for the next year or two, and that it was estimated at the present time they were expending at least a further three millions in addition to the immense works they already possessed.

"Their whole scheme seems to be speed of production. For instance, they are making immensely powerful lathes which will bore and turn a 12-inch gun simultaneously, which they estimate will save at least one-third of the time. I also hear that 114 cranes are being made for these extensions. They seem to have ordered five machines for turning up the roller pads and turntables for very large mountings, each of these machines costing £5,300. There is nothing nearly so good in this country."

Those are the particular details which he mentioned in his first letter in 1906.

4964. Sir Philip Gibbs: Then he says himself, I do not know with what truth, that between 1906 and 1908, "I had many interviews with the principal Admiralty officials respecting the information which had come to my knowledge, and I was able to supply proofs of my assertions." May I ask you whether, at the same time, he was asking you for orders for the Coventry Ordnance Works?

Sir Oswyn Murray: The next record we have of information received from Mr. Mulliner was in 1908, when he paid a visit to the Director of Naval Ordnance and gave further information. Between the time of the receipt of these two pieces of information the Naval Attaché at Berlin had been asked to investigate the correctness of the information. In fact, the minute of the then Controller on Mr. Mulliner's first letter is rather interesting. It was, "A confirmation of this intelligence from an unprejudiced source is desirable." The Naval Attaché then paid a visit to Krupp and made a report to the effect that there were signs of rebuilding and reconstruction everywhere visible which pointed to a more than normal expansion of the works. The next year, in 1907, he again paid a visit, and on this occasion he found that the greatest reticence was displayed on the part of the officials, he was not able to get anything like a complete survey of the yard, but he could see that an enormous amount of reconstruction and rebuilding work was going on. There had in the meantime also been reports in the press about machinery being bought by Krupp from Sheffield and elsewhere. I think it is quite true that by 1908, when Mr. Mulliner paid the second visit to the Admiralty of which we have record, or, rather, made the second communication of which we have record in the Admiralty, his firm was trying to get into the gun-mounting business with the Admiralty. The Coventry Ordnance Works at that time had not been put on the list for large gun mountings, and he was trying to get his firm on to it, but by that time, I would ask the Commission to note, the information given by Mr. Mulliner had already been checked and very largely confirmed and added to by the Naval Attaché and from other sources.

4965. Sir Philip Gibbs: Thank you. Of course, this case of Mulliner which is rather old now is really of considerable importance because it might be, if certain facts were proved, a contributory cause to the Great War, and therefore of course if that were so it would be of very vast importance. Do not you agree?

Sir Maurice Hanky: Oh, yes. You see how seriously I took it from the first because I felt it was almost a key point.

4966. Sir Philip Gibbs: I mean, although it is an isolated instance, yet if one man could in some way or other have contributed to the Great War, that would be of very great historical importance. Now you said this morning you did not think that Mr. Winston Churchill had made any reference to

the case in his book. As a matter of fact he did. He said that after all this propaganda had taken place, which was partly inspired by Mr. Mulliner, according to the evidence I have in the press, then the controversy arose as to the number of ships which Germany would have, the number of Dreadnoughts in 1912; and our government, and especially our Opposition, seemed to believe, so we are inclined to believe, that the Germans would have 21 Dreadnoughts in April of 1912 whereas, I believe I am right in saying, they only had nine. Is that so?

Sir Oswyn Murray: The Germans had nine in April, 1912, and they had 13 by the end of that year.

4967. Sir Philip Gibbs: Well, you see according to the propaganda which was associated at least with the name of Mr. Mulliner—because he saw many Members of Parliament and so on—the Opposition took the view that there would be 21 Dreadnoughts in that year of 1912. Now Mr. Winston Churchill says in his book, "There had been no secret warships nor had Admiral Von Tirpitz made any untrue statement." Do you bear that out?

Sir Oswyn Murray: It is quite true that there were no secret warships, and it must be remembered that the total number of ships to which Germany was building was fixed by her navy laws and we all knew what the number was. The whole question was at what speed she would build that total number of ships. We also knew the total number of ships we had got to build in order to have the 60 per cent. superiority which the government had laid down. The only question was at what rate we had got to build these ships. The position when Mr. Mulliner appeared on the scene, by which I mean March, 1909—

4968. Sir Philip Gibbs: Well, that of course was not his first appearance on the scene. 1906 was his first appearance.

Sir Oswyn Murray: Oh, yes, but I call that his first appearance because that was the time when he had the interview with the government and was supposed to have influenced government policy. The position at that moment was that Great Britain had the following Dreadnoughts built and building. The programmes up to and including 1905 included four ships, the 1906 programme included three, one ship having been dropped from the programme originally proposed, as a gesture because of the approaching Hague Conference on disarmament. The 1907 programme again, the programme was announced to be two Dreadnoughts but one would be added unless the Hague Conference came to a satisfactory settlement on disarmament. The Hague Conference did not do so and therefore the number of ships in the 1907 programme became three. The 1908 programme was announced to be only two, and there were thus 12 ships built and building in March, 1909, when Mr. Mulliner was interviewed by the Cabinet. Now Germany at that moment had the following: the 1906 programme, two; 1907 programme, three; 1908 programme, four; 1909 programme, which according to our expectations ought not to have been laid down but as to which we had information that contracts for two had been placed in advance in the autumn and material for the other two had been collected in advance, so that the ships were already in a sense begun, making four. Therefore it was impossible to deny that at that moment Great Britain had 12 Dreadnoughts built and building and Germany had 13. The government when they were faced with an insufficient programme in 1908 had laid stress on the fact that we could build quicker than Germany. They admitted that the Germans claimed that the average rate of building of a Dreadnought in both countries was the same—that was about two and a half years—but the government claimed that we could cut that period down in case of need to two years, and they did not think the Germans could. In 1908 Mr. Asquith, who was then Prime Minister,

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stated these facts and said that if it should appear that the German rate of building was quicker than we reckoned that it would be, the government would take special steps to deal with the situation. The evidence that was obtained as to the placing in advance of two ships and the materials being collected for two others, the evidence as to the capacity of Krupp which had been given by Mr. Mulliner and by the Naval Attaché and from other sources, and also as Mr. McKenna mentioned, I think in 1911, his own calculations from the German estimates as to the extraordinary amount of money that was being put down for the German ships of the 1908 programme, all led to the apprehension that the German building was going to be quicker than the government expected it to be. If that was so, considering that we as a rule laid down our ships in December and the Germans laid them down ordinarily in June but were now apparently accelerating the laying down and getting them ready in the autumn before, it looked as if this position, in which we had got 12 built and building and the Germans had 13 built and building, was one that was going to be extraordinarily difficult to catch up; and the Opposition, naturally trying to put the facts at their worst, drawing the inference that suited their case best, said, "But suppose that the Germans always lay down their ships some months ahead of the normal date and you do not find it out until afterwards, as you have admitted has happened in this case, and suppose that the Germans always build as quickly as we can—that is, two years—and you yourselves now say that you see no reason why they should not"—they then calculated what was the maximum number of ships that Germany could get by a certain date on those assumptions, and got up to the 21 quite naturally on those suppositions. Those suppositions were extreme, but each one of them was a possible supposition and was based on an admitted fact that the government were not able to deny.

4969. Sir Philip Gibbs: Thank you. Of course, Sir Maurice, from your point of view, I mean to say the point of view of your argument, the interest in this case is really political, that is to say, the allegation against Mulliner is that as a manufacturer of arms he conducted a propaganda, you see, for an increase of the Fleet whether on good knowledge or bad, but the point which is most interesting is its effect on the general situation which led to the Great War. Now Von Tirpitz himself in his *Memoirs*—I do not know whether you have read his *Memoirs*?

Sir Maurice Hankey: A long time ago.

4970. Sir Philip Gibbs: He says that the wild agitation of public opinion in England due to this propaganda, which is the Mulliner campaign in the press, you know, chiefly, and also of course in the House of Commons, "created justifiable amazement in Germany, and I was besieged on all sides for a big increase of Germany's naval power." Well, it is, of course, arguable that the campaign which was created by Mulliner, which he helped to create anyhow, did lead to that extreme agitation of public opinion and therefore led Von Tirpitz to an increase in the navy which might not otherwise have happened.

Sir Maurice Hankey: I think my reply to that is that Mulliner really had very little part in this. We have heard this very interesting account from Sir Oswyn Murray of how the increased programme came to be arrived at, but Mulliner's share in all that was extraordinarily small. I stand corrected by Sir Oswyn Murray for his greater knowledge, but all that Mulliner said was that in respect of a certain bottleneck in capital ship construction, namely, guns and gun mountings, Germany now has the means to increase; but all this information, all the information from Germany on which the programme was drawn up was quite apart from Mulliner altogether. Mulliner only filled up one

gap in the programme, in that he started in looking to see whether these gun mountings could be increased, and it was he—you have heard the Controller's minute, "We must get this confirmed"—who started the Admiralty on their inquiries quite early, somewhere back in 1906, I think. But of course that can be confirmed from my memorandum. It is a very small part in the story, Mulliner's part. 4971. Sir Philip Gibbs: Except, you see, that his activities were not entirely restricted to the Admiralty, but he did become a sort of political campaigner; he visited, according to the information I have, many Members of Parliament, and that he was actually conducting a kind of campaign to stir up agitation.

Sir Maurice Hankey: That was not until the thing was in full swing, was it?

4972. Sir Philip Gibbs: That was later. That was in 1909.

Sir Maurice Hankey: In 1909. Now, you see, this difficulty arose in the Cabinet about March, 1909—February or March, 1909.

4973. Mr. Spender: Earlier than that, I think.

Sir Maurice Hankey: Even earlier? Well, I have been trying very hard to find out when Mulliner first came into the picture as a public character conducting a campaign. I cannot place it till the 2nd August. That is the first date at which I can place it; but I think before then he had probably been to the Opposition Members of Parliament on his own particular aspect of it; but, you see, somewhere about then he ceased to be the head of the Coventry Ordnance Works, and I have written to several people to try and find the date when he left, but I have never been able to discover it.

4974. Sir Philip Gibbs: According to his own statement he says he felt bound to leave the Coventry Ordnance Works, because he had got wrong with the Admiralty, and that they would not give any orders to his works as long as he was there, and therefore he did resign at some date in 1909.

Professor Gutteridge: I thought we had some evidence that he was turned out?

Sir Maurice Hankey: Was asked to resign.

4975. Chairman: He was not kicked out by his directors, because in a sense they did not wish him to go, except that from a business point of view they thought if he did not go they would get no more orders.

Professor Gutteridge: I think Admiral Bacon said that.

Secretary: He merely suggested that that was a possibility. He did not give us any evidence on it.

Sir Oswyn Murray: Might I just quote from the Proceedings of the House of Commons, 29th March, 1909, as indicating the very small influence which Mulliner appears to have had in this matter. Mr. Balfour, in the course of debate, 29th March, said:—

"The government knew in November last that the Germans had ante-dated their orders. I should have thought that the most common prudence would have enjoined upon the government the necessity of telling the great contractors in this country that they must be prepared for larger orders. Did they do that in December? Did they do it in January? Did they do it in February, or did they do it in March? Why, Sir, I do not believe the government did it until the vote of censure was on the table."

"The Prime Minister (Mr. Asquith): The right hon. gentleman has made a most serious statement, and I take this opportunity of saying that it is absolutely without any foundation in fact. The orders were given in January."

"Mr. Balfour: Do I understand the right hon. gentleman to say that in January the great manufacturers who deal with gun mountings were informed by the government that they must make preparations for a large additional output of gun

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mountings? Does the right hon. gentleman say that?

"The Prime Minister: Yes. The arrangements were made—I cannot say the exact date, because I have not the papers here, but according to my recollection we had a Committee on the subject in the Cabinet; the whole matter was gone into most carefully; the contractors came before us, we entered into a full investigation of the situation, and the arrangements were made.

"Mr. Balfour: Of course, I accept the statement of the right honourable gentleman, but I am bound to say, I should not be behaving candidly to the House if I did not, that I saw one of the great contractors only three days ago, and he had received no such notice. I will give the name to the government, and I am perfectly willing to give the name to the Prime Minister or to the First Lord of the Admiralty."

According to the Prime Minister's statement to the House of Commons, the government warned the great manufacturers who dealt with gun mountings in January that they must make preparations for a large additional output of gun mountings, but it was not until the middle of February that Mr. Mulliner went to Sir Charles Otley with an introduction from Sir Ian Hamilton, and it was not until March that he had his interview with the government, by which time the government had already, many weeks before, apparently, so far decided that this expansion of their programme, the four extra ships, was necessary that they had already warned the manufacturers of gun mountings to be ready for it.

4976. Chairman: Have not we got all the facts now about Mulliner?

Sir Philip Gibbs: Yes, I think we have. I think we have only just got them for the first time.

Sir Maurice Hankey: If you would not mind clearing up Mr. Churchill's hook I do not think he refers to Mulliner as a contributory cause in it, does he?

4977. Sir Philip Gibbs: I have not got his hook with me, but I have made a note of it. He does, in my recollection, refer to the Mulliner case.

Sir Maurice Hankey: He refers to the ship-building controversy, but I do not think he puts the slightest trace of Mulliner as a contributory cause of the War.

Sir Philip Gibbs: No. Then he talks about the Opposition, the 21 Dreadnoughts, and the controversy about the secret building programme, and then he denies that and says that Von Tirpitz had no secret ships laid down.

Mr. Spender: Mr. Churchill is saying that he was right in opposing in 1900, and right again in increasing the number in 1914.

4978. Sir Philip Gibbs: Sir Maurice, of course, I wanted to ask you an enormous number of questions, because you make an argument of almost every point which we have to consider; and to some extent, of course, one would like to question you in detail on these things; but, after all, one must be moderate in one's inquiries, and therefore I do not want to keep you very long.

Sir Thomas Allen: All that I would say is, the more questions Sir Philip asks, the fewer I shall ask.

Sir Philip Gibbs: Sir Maurice, in your general argument in defence of private manufacture you have used certain phrases about the critics of that system, such as that they are under an illusion, and that the grave abuses with which private manufacture is accused are mostly figments of the imagination. Do not you think it is rather curious that some of the best brains in the world to-day should be convinced of those grave abuses? For instance, I would mention the representatives of many of the great countries, including France, at Geneva on the disarmament committee and commissions, who do accept the fact that there are grave

abuses, and argue a case upon that. Do not you think it is rather curious that this illusion should persist if there were no grave abuses?

Sir Maurice Hankey: I do not think it is very surprising because there has been a terrific propaganda on one side and very little propaganda or no propaganda on the other.* That is the point of view I take. President Wilson was a very great man, but I do not think he ever really set himself down—I cannot find any evidence that he ever set himself down—to investigate that matter, from the various biographies. Of course, there may be some grave objections that exist abroad that do not exist here. I do not know.

4979. Sir Philip Gibbs: I was going to make that point. Of course, I imagine that your argument is confined a great deal to the British side of things—the British industry?

Sir Maurice Hankey: Yes, it is directed mainly to British industry; but after going into some of these cases I have become so suspicious that I believe nothing until it is proved.

4980. Sir Philip Gibbs: Because, of course, I do think it is rather important to show in the inquiries of this Commission that the allegations against the private manufacturer of arms and the traffic in arms are international and not national, that there may be very grave abuses in other countries which we do not share to anything like the same extent, but nevertheless, that is part of the general attack upon the private traffic in arms and private manufacture of arms. You would agree to that, would you not?

Sir Maurice Hankey: That that is the attack?

4981. Sir Philip Gibbs: Yes, that the attack is international rather than national.

Sir Maurice Hankey: Well, I thought it was both.

4982. Sir Philip Gibbs: Well, it is both.

Sir Maurice Hankey: I thought it was both; but the thing that has bothered me all the way through is that there is no proof. That is why I say it is not substantiated, and so on. That is why I use those phrases.

4983. Sir Philip Gibbs: But you use one phrase in connection with the state corruption of the press in certain countries. You use the phrase, "It is within public knowledge", but you do not think that phrase might be used with regard to the abuses in connection with the traffic in arms, that it is within public and world knowledge that those abuses exist?

Sir Maurice Hankey: No. I do not think you can say so to the same extent. I am thinking of the many—I do not want to go very deep into this, as you can imagine, but one has seen uncontradicted statements by special correspondents in different countries about it, and so on—nothing ever contradicted; but I would rather not go far into that, as you can quite understand.

4984. Sir Philip Gibbs: No; but I myself am rather curious. It seems to me rather extraordinary that some of the ablest men in the world to-day representing their nations should, for something like 18 years, go on pressing for the abolition of private manufacture of arms and the abolition, particularly, of traffic in arms if it were all built up on an illusion. For instance, as late as 1933 M. Paul-Boncour addresses a note prefacing an amendment to the British draft convention in which he says, "There is no need to stress again that the French delegation remain faithful to the principle of the general abolition of private manufacture of arms". Have you any kind of idea in your own mind as to why

* Note by Sir Maurice Hankey.—The fact that "some of the best brains in the world" take a particular view is no evidence at all of the correctness of that view. Some very good brains believe in Bolshevism, Fascism, Nazism and so forth. That is no evidence of the correctness of those theories. In the case of private manufacture the "best brains" have not always had unbiased material on which to form a judgment owing to the fact that there has never been an inquiry.

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[Continued.]

France is pressing the entire abolition of private manufacture?

Sir Maurice Hankey: I think there is a good deal of politics in it, to start with. They have never had an inquiry, I think I am right in saying. I think the Secretary would know this, but I think I am right in saying that the French Chamber or Senate turned down the idea of an inquiry somewhere about the same time as this inquiry was set up.

4965. *Secretary:* Yes, there was a motion in the French Chamber for an inquiry by the Socialist party which was made a question of confidence by the French government, and it was rejected.

Sir Maurice Hankey: It shows that there are two points of view in it. The French government of that day would not have it gone into, even.

4966. *Sir Philip Gibbs:* Now I notice in your general summary on Part VII you say, under (c):

"Belgium, Bulgaria, Cuba, Egypt, Latvia, Norway and Poland considered that private manufacture was open to the objections previously enumerated, and South Africa raised other objections."

Sir Maurice Hankey: Yes, that is right. It is a repetition of paragraph (b), is it not?

4967. *Sir Philip Gibbs:* Well, that ought to include France, because I have just read you out the latest statement by M. Paul-Boncour.

Sir Maurice Hankey: It should include France, should it?

4968. *Sir Philip Gibbs:* Yes, I think it ought to include France, because according to the very latest information France is still pressing for the abolition of private manufacture, and anyhow her last delegation did do so at Geneva.

Sir Maurice Hankey: Well, this was some time ago, this questionnaire, and I am not sure that the French government of that day were in that mood. I do not think they were. I got this information from the branch in the Foreign Office that deals with these things, and unless it is a misprint I should very much doubt if they should be included. That, apparently, in 1925, and French governments change rapidly and they take different views on these things.

4969. *Sir Philip Gibbs:* Well, I will ask you whether you think there has been any inconsistency in the views of the British government relating to this subject. In that statement you read in which you pointed out that the British government has never really accepted that there were grave abuses against the private manufacture and trade in arms, it seems to me extraordinarily inconsistent with the fact that the British government have sent representatives to these various commissions dealing with this subject, and have actually accepted from time to time very strict limitations on manufacture and trade in arms, like the 1925 Convention and like their acceptance of the American draft convention. Does not it occur to you that it is an admission that something is wrong with this traffic?

Sir Maurice Hankey: No, I do not think there has ever been the slightest admission. I think the government's policy has always been one of control. You were told all about that by the Foreign Office representative, and you know at Geneva there has to be a good deal of give and take, and results are always the result of compromises, some people wanting one thing and some people wanting another. I am quite certain of this, that no British representative has ever gone to Geneva with instructions to take exception to private manufacture. I am quite sure of that.

4970. *Sir Philip Gibbs:* Are you equally sure about the traffic in arms?

Sir Maurice Hankey: The arms traffic—we have always fought very hard for the convention. It is really the thing we have driven very hard, the convention on traffic in arms. I make a distinction between the traffic in arms, which I am not very well up in, but which is, I suppose, to prevent arms

getting into the hands of backward peoples, and the ordinary trade in arms between civilized nations.

4991. *Sir Philip Gibbs:* Would you admit that there are a great many brilliant minds who do see objections in this traffic in arms, and also in the private manufacture? Would you go so far as admitting that?

Sir Maurice Hankey: I should like to give them my memorandum and ask them their views then.

4992. *Sir Philip Gibbs:* There is one point in connection with that that I want to ask you, and that is, you say that Lord Wester Wemyss was not the author of that memorandum, and it was not adopted by him, that memorandum which advocated the prohibition of private manufacture?

Sir Maurice Hankey: Yes.

4993. *Sir Philip Gibbs:* You say it was not adopted by Wemyss. Now, my information is—as a matter of fact, it is actually taken out of the life of Lord Wester Wemyss by his wife—is that he asked Mr. Dawson to draw the memorandum up.

Sir Maurice Hankey: I do not think there is anything inconsistent in that. He might have asked him to draw it up. A man comes to you with a novel proposal, and you say, "Put it on paper." I constantly do it myself, but it does not mean in the least that I agree with his proposition.

4994. *Sir Philip Gibbs:* Well, of course, in Lady Wester Wemyss's book—I do not want to read long passages—she shows very clearly that he felt very violently about this private manufacture of arms.

Sir Maurice Hankey: I knew Lord Wester Wemyss a very long time. He was a very old friend of mine. I was in the Mediterranean Fleet with him in 1906, and we had been very friendly there, and we were always friendly afterwards, and I have not the faintest recollection of his ever expressing any views on this particular subject, though I saw a great deal of him.

4995. *Chairman:* Can you get any forerunner with it? You have got the two views.

Sir Philip Gibbs: Except that it is important in this respect, that you have definitely stated in your memorandum here that Lord Wester Wemyss did not back that memorandum; but certainly so far as his wife's knowledge goes he did back it before, and curiously enough afterwards.

Sir Maurice Hankey: Well, perhaps I might call upon my ally again. Perhaps Sir Owyn Murray can throw some light on this.

4996. *Chairman:* We shall not clear it up. I mean, there is this difference of view, apparently. Her ladyship did take one view and it is not the view which you have put forward.

Sir Maurice Hankey: My point, Sir John, is that the last view expressed by Admiral Wemyss, and expressed with great precision and followed by forceful action at the Peace Conference, was the view that I have given you, stated in a solemn memorandum in which the Admiralty took the initiative, and which was signed by the chiefs of staff or their deputies in London, and that was his latest expression of view.

4997. *Sir Philip Gibbs:* Of course, Lady Wemyss says that owing to the opposition of the Admiralty officials, and to the controversy it aroused, and many difficulties, he abandoned the effort to get this thing put forward at the Peace Conference, and regretted it afterwards.

Sir Owyn Murray: I think I went through all the phases of the discussion of these questions at the Admiralty at the close of the War, and I have certain records from which I am able to refresh my memory. I think there is no doubt that when he first approached this question at the end of the War Lord Wester Wemyss had a feeling in favour of nationalisation. I find in our first notes of the first preliminary discussions we had on a number of subjects that we thought likely to arise at the Peace Conference, a note which says "C.N.S."—that means Lord Wester Wemyss—

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" considers armament factories should be nationalised in all countries." That preliminary expression of views was followed by a number of meetings at which the subject was probed more carefully, and various opinions were put forward, and at one stage in that further investigation there is no doubt that Lord Wester Wemyss circulated to us all the Harbutt-Dawson memorandum. I have a note there, recording that Lord Wester Wemyss said he would like to circulate a memorandum looking at the subject from rather a different point of view, and that memorandum, when it came round, was the Harbutt-Dawson memorandum. It had Harbutt-Dawson's initials on it; it had his writing on it and it had certain passages in it which Lady Wester Wemyss has omitted from her version of it, because she felt instinctively, I think, that Lord Wester Wemyss would not have stood by them. One was an expression of personal feeling towards Mr. Lloyd George which was exactly the opposite of what Lord Wester Wemyss's real feelings were known to be, and the other was an apology for the expression of views on such a technical subject by an untechnical man, which, of course, it would have been ridiculous for Lord Wester Wemyss to include in his own paper; but that was the form in which the paper went round and was discussed.

Sir Maurice Hankey: The form in which it was discussed included the paragraphs that you have referred to?

Sir Oslyn Murray: Yes. I sent you a photostat of the thing exactly as it went round, and it had those quite amusing passages in it—amusing, I mean, if they were put into Lord Wester Wemyss's mouth. Well, this was merely one of a number of memoranda that were presented at the time while we were trying to make up our minds on subjects that were rather new to us. I remember somebody answered Mr. Dawson's memorandum, and Mr. Dawson again furnished another memorandum answering that, and so it went on; but eventually, when we came to close grips in the sub-committee which was considering the question and drew up a report, there is no doubt that Lord Wester Wemyss concurred in the report which was drawn up, which was contrary to nationalisation. He presided, in the absence of the First Lord, at the meeting of the Board where that memorandum was ratified as the final opinion of the Admiralty, and afterwards, in Paris, as Sir Maurice Hankey has pointed out, he joined with the representatives of the Army and Navy in circulating a memorandum very strongly against it. I believe he regretted very much that his common sense and intelligence forced him to take a view which, from a sentimental point of view, he would much rather not have taken.

4998. Sir Philip Gibbs: Thank you. Well, Sir Maurice, I think perhaps I will withdraw nearly all my questions, because it is getting late, and I do not want to tire you at all; but may I just ask you one or two general points on your argument. Are you in favour, as a matter of fact, of a stricter government control of the private manufacture of arms?

Sir Maurice Hankey: I have dissociated myself from control. You had the expert there, and I do not really feel that I am competent, nor that it is quite appropriate that I should express a view on that.

4999. Sir Philip Gibbs: All right. Then another general question, and it is this. Is not there already a tendency to restrict the private manufacture of arms and place it under government control? Are not the provisions of the White Paper, as a matter of fact, to some extent a denial of free private manufacture as was carried on in the old days before the War?

Sir Maurice Hankey: I do not think so. Of course, temporarily, while you have got a great rush of orders, it may be that the firms are less free than

they were before to carry out foreign orders, but one has got to take rather long views on this, and look to the time when things are restored to a more normal state, and I hope more peaceful conditions, and then I should imagine that the industry would revert.

5000. Sir Philip Gibbs: Would you agree that in time of war there is no such thing as private manufacture?

Sir Maurice Hankey: Well, of course, it will all be very much under government control, yes. I think that is so, probably in pretty well every country, too.

5001. Sir Thomas Allen: I will confine myself to asking you three questions by way of elucidation and to satisfy my own mind. Frequently you emphasise the word "co-operation", and its importance with regard to developments that are now proceeding. Would you define to us what you mean by co-operation?

Sir Maurice Hankey: It is a rather big question, is it not? You mean co-operation between the government and industry?

5002. Sir Thomas Allen: You pointed out that the solution was co-operation rather than nationalisation, and the difficulty in my mind is your interpretation of co-operation.

Sir Maurice Hankey: I know exactly what I mean. I saw it in operation the other day on board the *Queen Mary*. I told you I went to the engine room, and there was there a very high official of the Admiralty and then there was a very high official of the firm, and one of those—I do not know which it was—told me that they had been co-operating for years, that is to say the firm had built the engines for warships and the Admiralty official had, of course, had to co-operate in that—warships. There had had to be close contact, so that they knew one another well and knew one another's mentality and could come to one another for help, if necessary, in the problem; and I think the same thing is going on very much in the development of the Air Force between the Air Ministry and the firms, the inspectors and people who get to know the firms. You can see it. It is described in one of the annexes to my first memorandum. It is the last annex to the long paper on private manufacture in the War. You remember there is a long appendix on that, and to that there is an annex, and the last annex is by the air historian, and I think he shows how the co-operation worked there between the Admiralty and the War Office respectively and the firms. I do not think I can define it much more clearly. It is a thing that has got to develop itself.

5003. Sir Thomas Allen: Would you view co-operation in this aspect? Personally, I have been associated with co-operation all my life, and it has always borne the elements of partnership, sharing interests, sharing profit, mutuality. Where is the mutualism or the sharing of profits under the new defence scheme? It is simply an extension of the old system where one makes the profit and the other pays the price. There is no sense of co-operation at all, as I understand it.

Sir Maurice Hankey: If I buy a house or make an extension to my house or build a house I try and co-operate very closely with my architect and my builder, because that is in the ordinary way of supply and demand. I am very anxious to get the house built exactly as I want it, and therefore I make a point of having the very closest contact. Well, surely it is the same relation between the service department that is ordering the ship or the aeroplane or the gun and the firm that is making it. 5004. Professor Gutteridge: I am wondering whether you do not really mean "collaboration". I was a little puzzled when you said "co-operation"; but I take it that you mean collaboration.

Sir Maurice Hankey: I will accept the word "collaboration". Of course, the word "co-operation" bears a rather technical meaning, especially to Sir Thomas Allen.

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5005. *Chairman*: It is the opposite of working at arms' length?

Sir Maurice Hankey: Yes, that is it.

5006. *Sir Thomas Allen*: There was one case that you submitted with the light of knowledge and the facts that were known inside the government services. What I was wondering was, have you any first-hand knowledge of the arms supply difficulties of war-time as evidenced by the witnesses to whom you reply?

Sir Maurice Hankey: Yes, of course, this question used to come up at the War Council, and I was in very close contact. I was secretary to that. I was keeping all the minutes of it, and I was really in daily contact with Mr. Lloyd George and Mr. Halford, who was taking a share in it at the outset. I was not, of course, in the Ministry of Munitions when it started, but I had a very close contact. At that time the Committee of Imperial Defence was not being used very much; it was gradually being replaced by the War Council, which became a war expression of the Committee of Imperial Defence, but there was a short period in which both were being used to some extent, and as a matter of fact that subject got passed over at a certain stage from the Committee of Imperial Defence to the War Council; but as I was secretary of both I had the contact right through.

5007. *Sir Thomas Allen*: I was very much interested in your historical survey, and I thought perhaps you could extend that survey and help us in this direction, to tell us, if you could, how Woolwich came at all into existence? It is rather important for us.

Sir Maurice Hankey: I should have to get somebody else to do that. This has been a terrible tax on me, doing all this evidence. I have done a vast amount of it myself.

5008. *Sir Thomas Allen*: You have gone a very long way back. I thought you might have gone a little nearer and told us the reasons why Woolwich was established?

Sir Maurice Hankey: I dare say one would find it somewhere. I will have a look round if you like, or I will ask someone to have a look.

5009. *Professor Gutteridge*: I understand that it must be some time ago, because the badge of the Army Ordnance Corps, you remember, the old-fashioned gun with the three cannon-balls was said to date back to the old days of Woolwich, and we were always given to understand that that badge was at least 200 years old.

Sir Maurice Hankey: Oh, I have an impression that it goes a good way back.

5010. *Sir Thomas Allen*: Just one final question I would like to put to you. Private manufacture, in its final analysis, to my mind is the shifting of an obligation which is a proper function of government. You would not agree with that—shifting the burden on to other shoulders which the government should undertake itself, at whatever risk and at any cost?

Sir Maurice Hankey: Well, as a philosophic or economic proposition I am really not sure, and I should have to think about that. I could not express an opinion off-hand on a point like that. I do not think my opinion would be valuable.

5011. *Professor Gutteridge*: I was going to put one or two questions to you on the matter of neutrality, but I will refrain from doing so at this late hour, because I think you agree with me that the thing at the present moment is rather in a state of flux?

Sir Maurice Hankey: Yes, absolutely.

5012. *Professor Gutteridge*: And nobody say at the moment whether neutrality exists or not?

Sir Maurice Hankey: No.

5013. *Professor Gutteridge*: There was also that further question about the trade in disarmed arms, but I had that out yesterday with a representative of the War Office, so I think I can spare you that, too.

Sir Maurice Hankey: I asked them to take it on.

5014. *Professor Gutteridge*: Yes, they told me what I wanted. May I conclude by handing down a modest contribution to the history of the subject. It is the earliest reference I have been able to find, in *Azo's Summa*, which is a law book of the thirteenth century, in which people who manufacture arms are said to pursue an honourable calling.

Sir Maurice Hankey: There is a lot of stuff in the history, but it is not worth bringing here.

5015. *Sir Kenneth Lee*: You said in reply, I think, to Sir Philip Gibbs, that in time of war a different situation would arise. I presume, then, you would be contemplating that in the next war manufacturers would draw a red line across their books and they would be controlled afterwards in quite a different way from the way in which they were controlled in the previous war, that they would be under quite different discipline?

Sir Maurice Hankey: I would not like to say exactly, because, you see, it all turns on what the control was at the end of the war. This business had been very carefully studied; but how it will compare with the last war I should not like to say.

5016. *Sir Kenneth Lee*: One of the great objections was, surely, the very high wages that were being paid to men in this country by private manufacturers, and the conditions of the men who were in the fighting forces.

Sir Maurice Hankey: Yes.

5017. *Sir Kenneth Lee*: Well, is it your view that they would be put on the same conditions as the men in the fighting forces?

Sir Maurice Hankey: Oh, I cannot answer that, and I do not think it would be wise to try and answer that, either.

5018. *Sir Kenneth Lee*: It would do away with a good many objections, would it not?

Sir Maurice Hankey: It might bring other objections. I do not want to be drawn into a public discussion of that.

5019. *Sir Kenneth Lee*: If everybody from top to bottom was treated as if they were under military discipline, would not a great many of these objections that have been put before us fall to the ground?

Sir Maurice Hankey: That is what you call industrial conscription?

5020. *Sir Kenneth Lee*: Yes.

Sir Maurice Hankey: That was often discussed in the War, and we did come very near it once in principle, but I should not really like to express any opinion on industrial conscription. All these things depend so tremendously upon public opinion, do they not, towards the war.

5021. *Sir Kenneth Lee*: Do you think we could fight another war on the same conditions as the last war?

Sir Maurice Hankey: You mean the conditions at the beginning or the conditions at the end?

5022. *Sir Kenneth Lee*: No; the conditions where some men in this country were getting £30 a week and other men were in the trenches.

Sir Maurice Hankey: Those are problems which are very much under consideration, the Minister for Co-ordination of Defence has these things very much before him, and I should not like to say anything.

5023. *Dame Rachel Crowdy*: You have reiterated a good deal through your second memorandum, and as far as I remember in your report to-day, that there has never been a real investigation into private manufacture, and therefore the fact is not established that there are grave objections? That has been a point of yours, has it not?

Sir Maurice Hankey: Yes, that this really is the first investigation in this country.

5024. *Dame Rachel Crowdy*: Would you agree that to make such an investigation thoroughly proper, in order to bear the private manufacturers whose cause you feel you have to espouse very warmly, a thorough investigation should have the right to take evidence on oath, to subpoena witnesses, and that the power of search should be given into the files of

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all the naval shipbuilding firms, aircraft firms, Vickers-Armstrong's, Imperial Chemicals, etc., etc.? Would you feel in favour of such an investigation, because that, of course, would settle the question, perhaps, completely?

Sir Maurice Hankey: I think that is not really a matter on which my opinion is worth anything at all. Of course, if you did that you might have to investigate and search the books of the other side and see how they were concerting their arrangements, if they were, and how they got their information, and if it was really from reliable sources. I think you open a very big question if you are going to do that; you have got just the same information from me as you would have got if I had been on oath. I have given exactly the

same meticulous care to this work as if I had been on oath.

5025. *Dame Rachel Crowdy:* But files, of course, show a certain amount, do they not? I mean, that is shown by the American investigation?

Sir Maurice Hankey: They might.

5026. *Dame Rachel Crowdy:* Would you think that an international investigation of that kind would be good?

Sir Maurice Hankey: No, definitely not. I think it would make a lot of ill-feeling.

5027. *Chairman:* I think that is all, Sir Maurice, and I wish very sincerely to say that we are greatly indebted to you for your assistance.

Sir Maurice Hankey: I am very grateful to you.

(Adjourned.)

APPENDIX A

SECOND MEMORANDUM OF EVIDENCE SUBMITTED BY COLONEL SIR M. P. A. HANKEY, G.C.B., G.C.M.G., G.C.V.O.

OBSERVATIONS ON THE EVIDENCE IN FAVOUR OF PROHIBITION.

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PART I

PREFACE.

In my first Memorandum of Evidence I sought in a constructive spirit to show how important and, indeed, essential to Imperial Defence is the existence of private manufacture of and trading in arms and munitions of war.

2. The Royal Commission, however, has received a great deal of evidence in favour of the prohibition of private industry and the establishment of a state monopoly on grounds covering an entirely different field from my main evidence.

3. In the present Memorandum my object is to examine this evidence from a general rather than a technical point of view.

SYNOPSIS.

4. This evidence begins with some historical notes (Part II) which show that the historical foundation of the case against private manufacture is extremely weak. The strictures in Article VIII, paragraph 5, of the Covenant are demonstrated to rest on no examination of the question by any international or national authority. It is shown in the same section that the Temporary Mixed Commission of 1921 took no evidence, and that its six points against private manufacture were neither "charges" nor "conclusions," but merely a catalogue of objections that had been raised, on which the Commission itself expressed no opinion. This should enable the Royal Commission to dispose once and for all of a misrepresentation that has been spread all over the world. Part III contains general observations on the case against private manufacture as made both in public propaganda and in evidence before the Royal Commission, and comment is passed on the efforts to create prejudice, the lack of balance and perspective, the vagueness, exaggeration and inaccuracy of much of the evidence though there are conspicuous exceptions. In Part IV the general case against private manufacture and trade is examined. The argument that public opinion is opposed to private manufacture is first taken up, and it is shown that public opinion has been misled

by tendentious propaganda. Private industry as a cause of war and unrest is next examined, and, by reference to wars extending well over a century, including the Great War, it is suggested that, compared with other causes, the influence of private manufacture was always negligible, and that this is, if possible, even more true at the present day. Indeed, the theory is a mere figment of the imagination of its opponents.

5. In Part V the detailed criticisms of private manufacture of arms and munitions are taken up in detail, including the principal illustrations in the evidence, and submitted to searching scrutiny in the light of the actual facts and the surrounding circumstances. As far as possible the evidence is grouped round the six points of the Temporary Mixed Commission, but other points are also dealt with. This part covers such points as the alleged incompatibility of public duty and private interest in private arms manufacture; profit out of war; fomenting war scares; dissemination of false reports (including a minute examination of the Mulliner case); interference in Disarmament Conferences (the "Shearer" case); bribery and corruption; the employment of British ex-government servants in private manufacture; influencing the press; solicitation; armament rings and trusts; prolonging wars and supplying both sides (Bolivia-Paraguay); and the alleged inefficiency of private industry. The net result of this examination is to show that most of the charges in the list are not even seriously preferred against British private manufacture, and that, when they are preferred, they usually have no validity. Against foreign private manufacture sufficient evidence is rarely available to prove the charges, and the facts are often obscure. But in practically every instance it is shown that, whether evils exist or not to any appreciable extent under the present system, as great or worse evils would be introduced under a system of state monopoly. Many of these points required exhaustive research, the results of which are set forth in Annexes—some of them of considerable interest.

6. The Memorandum concludes with a summary and a general conclusion.

PART II

THE ORIGIN OF ARTICLE VIII, PARAGRAPH 5, OF THE COVENANT.

7. So far as my inquiries enable me to judge, no serious attempt has yet been made to study the question before the Royal Commission in the light of past history, and I myself have neither the time nor the inclination to fill the gap. From time to time, however, I have, in the ordinary course of reading, lighted on examples from history that bear on the question.

8. The earliest such example is taken from the history of the Crusades in the twelfth and thirteenth centuries, when some of the Popes of Rome sought to prohibit trade in arms with Moslems. The episode might be of incidental interest to the Royal Commission as an early example of the difficulties in securing whole-hearted international co-operation in such matters. A brief note of the matter is attached in Annex I—but I do not pretend to have devoted much research to the episode, which is submitted as a matter of interest rather than as serious evidence.

9. For the purposes of the Royal Commission it will probably suffice if the historical aspects of the question are taken up from the point where the first proposal was made to deal with private manufacture and trade in the Covenant. The point is not without importance, as the imputation of "grave objections" in the Covenant of the League of Nations is the real foundation of the case against private manufacture of and trading in arms and munitions of war.

10. It seems desirable that the Royal Commission should be informed by someone who was present at the Paris Peace Conference as to how far this "responsible international authority" and those who composed it did in fact investigate the matter before indicting as "open to grave objections" an industry which had, during the preceding four years, saved the Allies from defeat and disaster. I have

therefore investigated the matter in some detail, and the results are attached in Annex II. They confirm my own recollection and have been checked by some of the British official participants in the League of Nations Commission of the Paris Peace Conference.

11. It will be seen that, so far as the available records go, there never was any investigation at all by any international or national authority and no evidence was taken as to the supposed objections and evils. The idea of prohibiting private manufacture and trade was an American one taken up by President Wilson, apparently rather against the views of some members of his own Delegation: though General Smuts had given some support to the idea in his paper on the League of Nations of December, 1918, its inclusion in the Covenant was, generally speaking, not supported by the British Delegation at the Paris Peace Conference: they had, however, to meet the persistent pressure from President Wilson to include prohibition and, after several efforts to drop out all reference to the subject had failed, their efforts were directed to some less drastic treatment. Eventually a strong case against prohibition of private manufacture was produced by the British Defence Departments (see important Note below), which seems to have convinced those of our own Delegation who were concerned in the Commission on the League of Nations; and the form in which private manufacture is now dealt with in the Covenant was proposed by the British Delegation as a compromise and adopted by the Conference. But from first to last no serious attempt was made, so far as the records available to me go, to investigate the "grave objections" or to take evidence on the subject.

Note on Admiral Lord Wester Wemyss' opinion.

I invite the attention of the Royal Commission to the fact that the Memorandum by the Defence Services against prohibition, dated 7th February, 1918, was signed on behalf of the Admiralty by Admiral Wemyss, the First Sea Lord. This disposes of the suggestion made by Mr. Noel Baker (10th Day, page 230) and other witnesses, on the strength of a Memorandum circulated by him to the Board of Admiralty in December, 1918, that Admiral Wemyss was in favour of the suppression of private manufacture. The facts are set forth in a letter dated 4th November, 1935, from Sir Osney Murray, the Secretary to the Admiralty, which is attached in Annex III. From this it will be seen, *inter alia*, that Lord Wester Wemyss was not the author of the Memorandum, as stated by Mr. Noel Baker; on the contrary, it was written and initiated by a Mr. W. Harbutt Dawson; that it was never circulated over Admiral Wemyss' initials or adopted by him in any way; that it was merely circulated to the Board as one of many memoranda expressing different points of view on a number of the new problems that were arising; that, although the Admiral had approached the question with a feeling against private manufacture, he took part in an Admiralty Committee, at which the form in which the Admiralty's views were to be stated were discussed and settled, and he presided at the Board Meeting when these conclusions were ratified. In addition, as already mentioned, he signed the Memorandum by the three Defence Services a month later. I therefore invite the Royal Commission not to accept the suggestion that Lord Wester Wemyss' considered judgment favoured the suppression of private manufacture of arms and munitions of war.

THE TEMPORARY MIXED COMMISSION, 1921.

12. At the Paris Peace Conference private manufacture had been found guilty of "grave objections" without being heard and without even the semblance of a trial. As the Covenant contained the indictment it was the duty of the League of Nations, when established, to investigate the alleged evils. The task was remitted to the Temporary Mixed Commission. This inquiry, again, is of some importance to the investigation of the Royal Commission for the reason that in public controversy, as reflected in the

evidence, it has been alleged (quite wrongly) that the Temporary Mixed Commission took evidence on the subject and, as a result, formulated "conclusions" convicting private manufacture and trade on charges under six specific heads,—for example, the following:—

"These are definite charges, and it is a pity that the evidence on which they were based has not been published."

Or again—

"The evidence given to the Commission has not been published." (*Minutes of Evidence: 5th Day, p. 155.*)

I have therefore made inquiry as to what did actually happen at the Temporary Mixed Commission, and the results are set forth in Annex IV, where it is shown beyond possibility of doubt—

(i) that no outside evidence was taken by the Temporary Mixed Commission;

(ii) that the six points against private manufacture were neither "charges" nor "conclusions," but merely a catalogue of objections which had in fact been urged against uncontrolled or unregulated private manufacture of arms, and that no endorsement to these objections was given or implied. The six points against private industry were balanced by eight points against its prohibition and the two compilations constituted sets of propositions *pro* and *con* which had been urged, but did not represent any findings of the Committee as to their validity. This is proved by the official *procès-verbaux* of the meetings, and is corroborated by Dr. H. A. L. Fisher, the chairman of the Sub-Committee and draftsman of the Report, and by his principal collaborator, Sir Hubert Llewellyn Smith, as well as by several other British participants in the work of the Commission.

QUESTIONNAIRE OF 1925.

13. The evidence contains no suggestion of any investigation of the alleged evils of private manufacture since the inquiry of the Temporary Mixed Commission. The investigations of the League of Nations did not include such inquiry. Mention should however be made of the fact that, in response to a questionnaire sent out by a League of Nations Committee of Inquiry in 1925, Australia, the United Kingdom, Italy, Japan and Sweden stated that, to the best of their knowledge, there were no grave objections to the system of private manufacture in their respective countries. Belgium, Bulgaria, Cuba, Egypt, Latvia, Norway and Poland considered that private manufacture was open to the objections previously enumerated. South Africa raised other objections.

WEAKNESSES OF THE HISTORICAL BASES OF THE CASE AGAINST PRIVATE MANUFACTURE.

14. The historical foundation, therefore, of the allegations against private manufacture of and trading in arms is one of sand. Neither before the Peace Conference, nor at the Peace Conference, nor thereafter, so far as I have been able to ascertain, was there ever any real investigation. The case against private manufacture has been built up on the basis of certain alleged episodes (often misrepresented), press reports, partisan pamphlets, and so forth. Never have the industries concerned been given a hearing. Never has the case on the other side been stated.

15. The investigation now being undertaken by the Royal Commission, therefore, is (apart from the American Inquiry) the first attempt to examine the subject impartially and comprehensively. It was, therefore, deemed desirable that the Royal Commission should have before it the historical facts set forth in this section.[†]

[†] Extract from a book entitled *The Secret International* quoted in the Statement of Evidence submitted by the Union of Democratic Control (*Minutes of Evidence: 7th and 8th Days, p. 188*). The six points are described in the book as "conclusions."

[†] A certain amount of further historical material will be found in paragraphs 38 to 52, where private industry as a cause of war and unrest is discussed, as well as in considering some of the details of the case against private industry.

PART III

GENERAL OBSERVATIONS ON THE EVIDENCE AGAINST PRIVATE MANUFACTURE AND TRADE.

16. No-one reading the evidence in favour of prohibition of private manufacture of and trading in arms could fail to be impressed by the earnestness and sincerity of those who urge this course. Their belief has been supported by a propaganda of almost unparalleled magnitude and extended over many years, which (whatever else can be said of it) must have involved immense effort and heavy expenditure. This renders it necessary to examine with the utmost care the case that is presented.

PREFACE.

17. It is hardly to be denied that much of the propaganda just referred to, in spite of the ability with which it has been conducted, has been one-sided and partisan. Even before the War a number of books and pamphlets were published on the subject, and since the War they have probably been equally numerous. The aggregate effect of these publications has been to create a strong prejudice in a section of public opinion against the private manufacture of arms and munitions of war. In order to stigmatise private manufacturers, prejudicial titles and catchwords have been applied to them and their business, such as *Merchants of Death*, *War Traders*, *The Bloody Traffic* and *The Secret International*.

18. The case as presented to the Royal Commission has, on the whole, been stated with less violence—conspicuously so by some witnesses. Even so, however, it is regrettable to find that much of the evidence continues, though in a lower key, the process of creating prejudice. The offensive catchwords mentioned above only appear, it is true, as quotations, but there are many phrases which tend in the same direction. For example, private manufacture of and trade in arms is described as “comparable to the slave trade from a moral point of view” (1st Day, p. 11); as “a predisposing cause of war” (*ibid.*, p. 18); as “a menace to the peace of the world” (5th Day, p. 169); as encouraging “conditions endangering peace” (*ibid.*); as “an influence hostile to the good understanding between nations upon which peace depends” (1st Day, p. 28); as “profiting from the world’s fears” (2nd Day, p. 47); as involving “the constant inflaming of public opinion in different countries against each other” (2nd Day, p. 50, Q. 521); as “calculated to disturb friendly relations between the British and other foreign Governments” (3rd Day, p. 78); as “fomenting and stimulating international rivalries and jealousies, which ultimately lead to war” (4th Day, p. 92); as responsible for the “stirring up of trouble and arousing of international jealousy and discord which undoubtedly is going on all over the world at the present time” (4th Day, p. 97, Q. 686); and as “liable to exercise a dangerous influence on the political life of individual nations and of the world as a whole” (10th Day, p. 200). The Royal Commission is asked to say that:—

“this arms trade, this export of arms . . . is doing at the present time incalculable harm in rousing international distrust and international unrest, that the trade is an undesirable and discreditable trade, conducted only too frequently by discreditable methods.” (7th Day, p. 138.)

19. The great armament firms are denounced as “collaborers in the supply of killing power to the world rather than rivals” (2nd Day, p. 48); as “engaged in the production of goods for the purpose of death” (5th Day, p. 149); their interests lying “in fear, insecurity, and ultimately war” (7th Day, p. 168). There is said also to be “an unholy triangle of politics, arms and finance.” Phrases such as “corruption” and “undue influence” are constantly recurring throughout the evidence against private manufacture. It is interesting to note, how-

ever, that one witness has changed his views in this matter. After confessing that he “used to share the views of those who thought that the private manufacturers were guilty of such offences against the standards of civilisation which modern society accepts that they might also be termed sub-human . . .”

he goes on to say that his views have changed. On his present view, to fasten full or even principal responsibility for the results of private manufacture on the manufacturers themselves “seems to me unjust, it seems to me wrong and it seems to me fallacious” (10th Day, p. 229).

20. The use of the language of hyperbole in this matter must tend to mislead a public that hitherto has had neither the time nor the material to study these matters completely. In these statements not the slightest regard has been paid by most of the witnesses to the published views of His Majesty’s Government,* whose attitude was defined in 1925, when in reply to a Questionnaire prepared by the Co-ordination Commission of the League of Nations it was stated that:—

“So far as this country is concerned the British Government are not aware of any grave objections of a national character. As regards objections of an international character, the British Government do not know of any that are peculiar to private manufacture.”

Ten years later, in reply to a question in the House of Commons in February, 1935, the Prime Minister again stated the position. The question and answer were as follows:

“Mr. Mervin asked the Prime Minister whether in the last ten years, any information has reached any Government Department that satisfied it that any British firm manufacturing armaments had sought improperly to influence the policy of His Majesty’s Government or any foreign Government in the matter of armaments.”

The Prime Minister: I have caused inquiries to be made, and, as a result, I am able to say that the answer is in the negative.”†

The firms which manufacture arms and munitions of war are, as a matter of fact, engaged also in the manufacture of articles for civilian use. Their normal armament activities are devoted largely to furnishing the weapons and munitions of our own deservedly popular defence forces, and those of the Dominions and India, on which in the last resort the peace of the world, the safety of the country and Empire, and perhaps of civilisation itself, may depend.

It must be remembered also that an appreciable proportion of the war material produced by private manufacture in peace-time is for purely protective armaments—coast defences, anti-aircraft defence and apparatus, and trade protection. While it is not admitted that any of our armament is aggressive, these items surely are, in the fullest sense of the term, defensive.

21. One witness takes the view that

“war is amoral, that the preparation for war is amoral, and that therefore there is no reason to think that the case against private manufacture is stronger than the rest of the case against war and the preparation for war from the moral point of view.” (10th Day, p. 230.)

* One witness goes so far as to base his whole evidence on the assumption that the evils of private manufacture are admitted, even by the Government:—

“I have started,” he says, “from the proposition that the evils of the system of private manufacture are admitted, and that under the terms of reference of the Commission, what His Majesty’s Government desire is to have advice as to how these admitted evils can best be dealt with . . .” (10th Day, p. 230; also his Statement of Evidence, paragraph 3—10th Day, p. 258).

So far is this from being the case that, as pointed out by the same witness in another connection, Government Committees have “reported in favour of the system of private manufacture, and of increasing the share of armament firms” (Statement of Evidence, paragraph 10—10th Day, p. 260), and Cabinet Ministers and their Departments have done their best to foster the industry—which they would not and could not have done if it was guilty of the alleged evils.

† Official Report 25 February, 1935, col. 774.

‡ Italics not in original.

Of the manufacturer, therefore, he says:

"He is not conscious of the objections which other people feel, because he is unable to perceive that the morality of his business is on any lower plane than a good deal of the morality of war and of preparation for war, of which his business is a part." (Statement of Evidence, paragraph 9, 10th Day, p. 260.)

These observations on the ethics of war and preparation for war, however, will not stand examination. No one can condemn a war or preparation for a war of pure defence against an aggression, or in fulfilment of "the enforcement by common action of international obligations" under Article 8 of the Covenant of the League of Nations—the only kind of war into which we are ever likely to be drawn. I submit to the Royal Commission, therefore, that the suggestion that the manufacture of arms is a business on a low moral plane is unjustified.

22. It is submitted that when all the above considerations are taken into account, the extravagant language quoted in paragraphs 18 and 19 is inappropriate and uncalled for.

23. Nothing is further from my thought than to suggest that the Royal Commission could be biased by attempts to create prejudice. Nevertheless, this poisoning of the atmosphere increases the difficulties of those who wish to present a more impartial view, and might easily deter some people from speaking their minds freely or even from offering evidence. Moreover, the matter has a national aspect. Private manufacture, as shown in my main evidence, is an essential part of our system of Imperial Defence. It is detrimental to the public interest that those engaged in it should be stigmatised in this way—at any rate when the case has not been proved against them.

24. If the evidence is not found to justify extravagant language, I venture to submit that this authoritative Royal Commission in its report should state its considered opinion on these extravagances.

LACK OF BALANCE AND PERSPECTIVE.

25. A second observation on much of the evidence under consideration is its lack of balance and perspective. Episodes are, so to speak, separated from their context and usually described from one aspect only—that of the private manufacturers. A searchlight is thrown on their alleged misdeeds (which are usually unproved and sometimes inaccurate), and surrounding circumstances are suppressed or ignored. When the facts of the situation they

refer to are examined as a whole it will often be found (as shown later in considering particular cases) that the part played by private manufacture in creating a particular situation was negligible. Examples of this tendency to lack of perspective are to be found in the references to the British naval programme of 1900 and to the supposed influence thereon of Mr. Mulliner, which is dealt with in this Memorandum in its proper place (paragraphs 81-87), and in most of the charges of malign influence, bribery, corruption, misuse of the press, solicitation and so forth.

26. In this Memorandum an attempt will be made to restore perspective in examining such charges.

VAGUENESS, EXAGGERATION, INACCURACY AND INSINUATION.

27. A third general observation is the vagueness, exaggeration, inaccuracy and even misrepresentation in much of the evidence, and, we may add once more—especially in public controversy—the tendency to overlook other relevant considerations. Some illustrations are much overworked and appear in the evidence again and again. As will be shown as we proceed, few of them have much value. Some are dredged up from the American Inquiry and on these I have not the material to comment. Some of the witnesses admit that they cannot get the evidence they want—for example, the Union of Democratic Control, notwithstanding Sir William Jovitt's admission that "we have had the collaboration of a number of young and intelligent people who are concerned in the trade"—viz., the heavy arms industry and the chemical trade! (7th Day, Q. 1076). Owing to the poverty of real evidence there is much resort to insinuation. For example, "Besides the material already available to the public," says the National Peace Council,* "there is presumably a mass of relevant evidence still undisclosed." This, of course, is mere presumption and not evidence. There are also the insinuations of corruption of members of the British public services, who, after retirement, join firms manufacturing armaments, and as to the effect on public men of holding shares in firms manufacturing armaments.

28. In order to indict any great industry it would be necessary to prove a great number of charges, and this, I venture to suggest, has not been done.

29. With these general observations on the character of the evidence we will pass to an examination of the general case against private manufacture and trade.

* 2nd Day. Appendix, p. 61.

PART IV

THE GENERAL CASE AGAINST PRIVATE MANUFACTURE AND TRADE.

30. It is not easy to state succinctly the general case made against private manufacture and trade, owing to the vagueness of much of the evidence. The League of Nations Union, for example, in its outline of evidence bases itself largely on the "anxiety of public opinion" and cannot "profess to offer direct evidence on the evils in question." Basing itself on four "published facts which cannot be unknown to the Royal Commission," the Union is led "to the conclusion that the commercial activity of the armaments trade tends to be inconsistent with negotiations for disarmament and the pacific settlement of disputes." It may easily become an influence hostile to the "good understanding between nations upon which peace depends." The first witness went rather further, "I do not doubt," he said (Q. 5, p. 9) "that it is one of the considerable obstacles to any system of world pacification . . ." Later on, when asked whether the private trade in arms was one of the actual causes of war (Q. 103, p. 18), he said "Yes, a predisposing cause is the way I should put it, rather than a proximate cause; and I think it is undoubtedly an obstacle to efforts to peace in the way you have been alluding to in the questions you have put to me."*

* Italics not in original.

31. The National Peace Council and the organisations associated with it, like the League of Nations Union, base themselves in their "general case" to no small extent on "the deep concern of public opinion." Beyond that, the gist of their general case is contained in the following passage:—

"The main ground for objection is, in the Council's view, inherent in the nature of this trade and does not require for its demonstration any research or documentary evidence. The manufacturer of armaments for private profit must desire the continuance of conditions in which there is a demand for his products; and he must be under temptations to stimulate, by whatever means are open to him, that demand. In the case of some commodities such stimulation of demand has no evil consequences; but in the case of armaments, as in the case of noxious drugs, it is open to the gravest objections. The business is perfectly legitimate so long as society allows it to continue; but society cannot well be indifferent to any motive-force which, by tending to increase armament and counter-armament, stimulates mutual apprehensions and suspicions, prevents the general disarmament that the world urgently needs, and imperils the 'peace of nations.'* It would, indeed, be absurd for manufacturers of armaments to contend that they do not

* Italics not in original.

desire the continuance and expansion of their business."²

32. The Union of Democratic Control, in its Statement of Evidence (Part II)³ says that it "has never maintained that the private manufacture of arms by itself is the cause of wars." But the last paragraph of the same part of the Statement says that "the interests of those who live by the sale of arms and materials of war lie in fear, insecurity and ultimately in war."⁴ After a reference to "touting" and other "discreditable methods which cause many difficulties in our private and foreign affairs" Sir William Jowitt continues "we contend that the arms trade must have, on a priori grounds, these tendencies."⁵ They argue, indeed, on much the same lines as the National Peace Council in support of this statement, but much of their evidence is devoted to an attempt to prove the practicability of government monopoly.

Similarly a later witness states the major evil in the following way:—

"The investment of large sums of private capital in armament production creates a permanent and powerful vested interest, the participants in which all depend for their prosperity on the policy which Governments pursue in respect of armaments. By the nature of the case, the controlling representatives of this vested interest wield great financial power, are brought by the necessities of their business into close contact with Government Departments, and generally possess or are able to establish close political connections. This vested interest constitutes a powerful force which inevitably favours the increase of armaments and opposes those policies which tend to diminish armaments and reduce the risk of war. . . . But whatever its methods, the effect is the same; the steady pressure of an elaborately organised and financially powerful vested interest against policies which make for peace and in favour of the increase of armaments, whether there is political justification for such increase or not." (10th Day, Appendix, p. 258.)

33. The "general case", therefore, appears to rest partly on the alleged objections of public opinion, which is dealt with below in paragraphs 34 to 37; partly on the allegation that private industry tends to promote war, which is also dealt with below; and partly on the suggestion that private manufacturers must use dubious means to increase their trade and profits and that the system inevitably involves a steady pressure against peaceful policies and favours an increase in armaments. The latter charges will be dealt with when we come down to examination of the case in detail, but as a preliminary observation I would invite the Royal Commission to note that, if private manufacturers were as powerful and as sinister as the evidence suggests, it is unlikely that our own armaments would ever have been reduced "to the edge of risk."

PUBLIC OPINION.

34. This argument appears on the very first page of the evidence—"The general case rests partly upon public opinion in this matter" (1st Day, Q. 1); again, "In the (Peace) Council's view, grave objections do undoubtedly exist; and the Council finds extraordinarily widespread support from public opinion on this point" . . . "Throughout Great Britain, the Council and each of the organisations here represented have found evidence of the deep concern of public opinion about this question . . ." (2nd Day, Appendix, paragraph 2, p. 60); or yet again—

"The Commission has already received, at its previous session, some impressive indications of the strength and extent of the public demand for

effective action to deal with the evils of the arms trade as now conducted. To-day I bring you further evidence of this demand." (2nd Day, Q. 490.)

35. How far this claim to support from public opinion is true is a matter on which my opinion is valueless, but may there not be a strong body of public opinion opposed to state monopoly but unheard because it is not organised for propaganda as are the advocates of monopoly? In any case, even among those best in a position to know the facts, the opponents of private arms manufacture have few, if any, adherents. The argument is based on an assumption that public opinion is sufficiently informed to be an impartial judge. It comes strangely from those who have for years been engaged in an attempt to prejudice public opinion, or rather a section of it, against private manufacture and trade by the use of a one-sided propaganda to which allusion has already been made.

36. Even the Temporary Mixed Commission was not unmoved by this argument of "Public Opinion," as will be seen from the Chairman's remarks quoted in paragraph 17 of Annex IV and from the extract from the Report quoted in paragraph 19 thereof.

37. But, as already mentioned, the truth is that public opinion has been misled about private manufacture of arms and munitions of war. The "grave objections" mentioned in the Covenant have been widely misrepresented as a considered judgment. The gross misrepresentation about the "conclusions" and "charges" of the Temporary Mixed Commission is naturally not questioned by the "man in the street" unless he happens to have read Sir John Simon's exposure. The same is true of the whole fabric of detailed misrepresentation, exaggeration and prejudice with which we are about to deal in the next section of this Memorandum. In a word, one side of the case has been misrepresented and grossly exaggerated. The other has hardly been heard at all. But truth must prevail, and I feel some confidence that the Royal Commission will not allow its judgment to be influenced by the argument of public opinion and will place the whole matter in proper perspective.

PRIVATE INDUSTRY AS A CAUSE OF WAR AND UNREST.

38. From the brief summary of evidence in paragraphs 30 to 32 it will be seen that the principal critics of private manufacture are at one in regarding it, if not as a cause of war, at least as a "predisposing cause," an "obstacle to peace," as "imperilling the peace of nations," with interests which "lie in fear, insecurity and ultimately in war." The subject therefore deserves investigation. This could best be done by examining historically the causes of wars in modern times, in order to ascertain what part, if any, in relation to other "origins," private manufacture and trade have played. In doing so it would be important to observe the precept of Polybius, who points out that most historians confound the origin of wars "because they do not keep a firm hold upon the distinction between a pretext and a cause, or again between a pretext and a beginning of a war."⁶ The subject of the origins of wars is a very abstruse and controversial one requiring great historical knowledge and a trained mind, as well as complete detachment. Although I cannot claim any historical qualifications, I happen to have given a good deal of study to the subject during recent years (not officially, but as a matter of personal interest) and will offer a very brief summary of impressions. To attempt more would be beyond the scope of this evidence.

THE ORIGIN OF WARS, 1315-1914.

39. The causes of the European wars of the last century seem to have been mainly political and very varied. One of the commonest was tyranny and oppression on one side, and the desire for liberty on the other, from which resulted the various wars of "liberation." From these there followed later on wars of "irredentism," in order to bring within the frontiers of the states concerned the

² 2nd Day, Appendix, p. 60. The greater part of this objection is dealt with in Part V.

³ 7th and 8th Days, p. 107.

⁴ *Ibid.*, p. 168. Italics not in original.

⁵ *Ibid.*, p. 188. Italics not in original.

⁶ Italics not in original.

⁶ *The Histories of Polybius*, Book XXII, Chapter 8.

peoples of the same nationality still remaining under alien rule. Nationalism—once solemnly denounced by a Synod of Austrian Bishops as "an invention of the devil"—was a closely connected cause of wars, applying especially in south-east Europe and to the various wars for the liberation of Italy. The influence of popular societies, such as the *Hetairia* Philike (Founded at Odessa in 1814), or the Italian National Society (founded in 1857)—to mention only two—must have contributed far more to these national movements than any conceivable efforts of armaments manufacturers. Other causes, or contributory causes, were the desire for expansion (including colonies) or an outlet to the sea (e.g., the Russian desire to reach the Mediterranean), racial and religious animosities (in the Balkans, for example), and economic need. The influence of armaments varied very much. In many wars—especially the wars of "liberation"—it was usually very small, and, under overwhelming national or political compulsion, acts of war were sometimes entered upon when the armaments and even the prospect of obtaining armaments, of one of the participants were very small. Armaments, I think, could hardly ever be described as a cause of these wars of liberation. In the wars of 1862-70 centring round Prussia—which Bismarck is reported to have said, in his years of retirement, that he made—armaments became a more important factor, not so much in the causes of the wars, which were political and complicated, but in the pretext and the occasion, e.g., the Prusso-Danish war of 1862; the war of 1866, when Prussia was armed with the "needle gun" while Austria was still armed with muzzle-loaders and "utterly unprepared"—(the political factor of Italy's co-operation with Prussia, however, was perhaps equally important in Prussia's decision)—and the Franco-Prussian war. The causes of the war of 1870 are much too involved to summarise here; the "pretext" was the candidature of a Hohenzollern prince to the throne of Spain; and the war was perhaps precipitated by the publication in mutilated form of the Ems telegram. According to some authorities armaments played an important part. To quote Lord Grey:—

"The world knows, from the revelations about the Ems despatch, that the war with France was intended by German militarists; the German armaments were then a preparation for making war with France, and not merely a precaution against attack by France."¹

There were, however, various political factors at that moment that also entered into Prussia's calculation.

40. Whatever may have been the importance of armaments as a factor, however, in none of the wars of the nineteenth century is it easy to find in standard works the smallest trace of the influence of private manufacture and trade in their origins—except in so far as they may have been of some value, as suggested in my first Memorandum of Evidence, in enabling struggling peoples to win their liberty.

ORIGINS OF THE GREAT WAR, 1914-18.

41. The Treaty of Berlin (1878) was followed by a long period of peace in Europe (though not in the rest of the world) broken only by the secondary and short wars between Serbia and Bulgaria in 1885 and between Turkey and Greece in 1897. This long peace has been described as "unexampled since the age of the Antonines."² It was an unquiet and apprehensive peace during which armaments were gradually increasing, as they are increasing to-day. It is probably true that, at times, the deterrent effect of these armaments helped to maintain peace—for example, I have heard it suggested that the naval competition of Great Britain with France and later with France and Russia, which was a feature

of this period, tended to prevent war. But no one could read the pregnant and weighty passages in Lord Grey's memoirs on the influence of armaments in this period without being impressed by the weight he attaches to the influence they exerted on the manifold origins of the Great War.³

42. It is notable, however, that, in spite of the stress he lays on the factor of armaments in the origins of the War, Lord Grey, so far as I have been able to ascertain, never once mentions private manufacture of arms in this connection. The greatest development of private manufacture took place in the long period of peace before the outbreak of war in 1914. If ever private industry had played a part in the origin of a war, therefore, one would expect to find it strongest in that era.

43. The origins of the Great War are dealt with at enormous length in the Gooch-Temperley Papers,⁴ of which ten large volumes have already been published, and where every factor or "predisposing" factor, however remote, is remorselessly exposed by the publication of official documents. Colonel E. Y. Daniel, Secretary to the Historical Section of the Committee of Imperial Defence, has kindly undertaken an examination of these volumes on my behalf in order to discover whether they throw any light on the place of private arms industry and trade in the origins of the Great War. It was not an easy search, for the reason that private manufacture and trading in arms do not appear as a heading in the admirable and comprehensive indexes of this massive compilation.

44. Colonel Daniel's report is attached as Annex V. It will be seen that he has not succeeded in bringing to light, from the volumes published so far, anything that could be said to give serious support to the formidable accusations against private manufacture as a "predisposing cause of war", "an obstacle to efforts for peace", as "imperilling the peace of the world", involving "the constant inflaming of public opinion", as "a menace to the peace of the world", as encouraging "conditions endangering peace", and so forth. Such mentions as there are of private manufacture are mainly of secondary importance relating to arms traffic to Morocco and Muscat rather than private manufacture. In some cases the episodes tell in favour of the firms concerned, such as Cammell Laird's inquiry at the Foreign Office in September, 1912, as to whether there was any objection to their selling to Greece two battleships built for Argentina.

45. The search, however, if somewhat negative in its results, has not been barren, for it has brought to light one or two episodes which bear on the more detailed evidence, and appear below in their proper place.

46. I have made some search of some of the foreign collections on the origins of the War, though not an exhaustive one, as sometimes they are not only not indexed, but do not contain even an adequate contents sheet. Such examination as I have been able to carry out, however, does not support the thesis that private manufacture of arms and munitions of war was an appreciable factor, if a factor at all. For example, the collection of Russian documents, known as the *Livre Noir*, dwells again and again on other influences, for example on the tremendous influence of the press—the more salient passages in this connection being usually printed in capitals. It pays considerable attention to the actions of governments, including their making a condition of loans that the proceeds shall be spent on armaments and strategic railways, but, in a review of this collection, which had to be less exhaustive than I could wish (because it is not indexed), I did not light on any accusation against private arms manufacture. The official Austro-Hungarian Red Book, which deals rather with the pretext or occasion than with the origin of the War, does not contain any reference to the subject of private manufacture. The heavy indictment of Serbian responsibility contained therein, however,

* The details in this section are mainly taken from Alison Phillips' *Modern Europe*.

† *Twenty-five Years*, Volume I, p. 91.

‡ Alison Phillips' *Modern Europe*, Fifth Edition, p. 629.

§ My attention has been called to evidence on this point on the 11th Day, Q. 1508-8.

* *Twenty-five Years*, Volume I, pages 90-93 and 300-308 Volume II, pages 62-3 and 271-3.

† *British documents on the origins of the War, 1898-1914*

lays great stress on the other factors. As in the *Livre Noir*, great prominence is given to the harm done by the press, not, be it noted in this case, under the influence of arms manufacturers but of Government, e.g.:-

"For decades the Serbian people have been entirely under the influence of the press, and the press of the ruling party determines the national policy. The outrage of Serajevo is the horribly abortive product of this influence of the press."

The quotations (pp. 30-34) from the Serbian press to support this thesis are too numerous for reproduction here. Immense importance also is attached to the alleged malign influence and propaganda on both sides of the frontier of certain nationalist societies such as the Narodna Odbrana and the Sokol Society Dusan. It is interesting to note also that the bombs used for the Serajevo murder are alleged to have been hand grenades "from the Serbian army stores" (e.g., pp. 29 and 51), and did not come from private manufacture.† A search by a member of my staff of the German diplomatic documents, 1871-1914 (Vol. IV) was equally unproductive of evidence against private manufacture as a cause of unrest and war.

47. A review of some of the principal British private accounts of the origins of the War (omitting purely propaganda works) shows an equally negative result. For example, apart from Lord Grey's *Twenty-five Years*, which has already been referred to, neither Mr. Churchill's *World Crisis*, Mr. Spender's *Fifty Years of Europe*, Mr. Lloyd George's *Memoirs*, Lord Haldane's *Before the War*, nor Captain Liddell Hart's *Short History of the War*, lay any stress on private manufacture, if they mention the subject at all in this connection (which I think is not the case).

48. From all this I venture to submit that, broadly, when reviewed in the vast complex of origins of the War and in the light of the innumerable factors that were agitating the public mind and predisposing nations towards war, the existence of private manufacture of arms and munitions of war was a negligible factor.‡ As the examination of the evidence proceeds in detail this consideration will become more and more clear.

ORIGINS OF POST-WAR HOSTILITIES.

49. There have been many resorts to force since the peace treaties were signed—in Russia, China, the North-West Frontier of India, Turkey, Syria, Morocco, South America and Abyssinia, to mention a few instances. Some of them were an aftermath of the Great War, and several must have been fought with the stocks of weapons and munitions remaining over after the end of the War. I am not aware of any connection having been traced between the

existence of private arms manufacture and the origins or causes of these wars.

50. I think that the only instances in which the evidence against private arms manufacture has referred to post-war hostilities are in the cases of Manchuria and Bolivia-Paraguay, and this hardly concerns their origins.

51. The origin of the Japanese occupation of Manchuria is dealt with in the report of the League of Nations Commission presided over by the Earl of Lytton. It has been examined by a member of my staff, who was unable to find any mention of private manufacture as a contributory cause of the hostilities.

52. The indictment in both the Bolivia-Paraguay war and the Manchurian dispute is, I think, that private manufacture and trade led to the prolongation of the war, rather than that it caused these wars.

CONCLUSIONS ON THE GENERAL CASE.

53. It is submitted from the above that the "general case" against private arms manufacture has not been made out. Apart from "profit out of war", which is dealt with separately, it rests on two main theses—the set of a considerable body of public opinion against private manufacture, and the allegation that private manufacture is a predisposing cause of war. The answer to the former is that public opinion has been misled—partly by the language of Article 8, paragraph 5, of the Covenant, and largely by the propagandist activities of those who now bring these charges—and that only one side of the question has been stated. In reply to the second thesis a brief review has been made of the origins of wars in Europe for a century before the Great War, of the origins of the Great War itself, and of post-war hostilities. From this review the fact emerges that, when considered in perspective with other predisposing causes of war, the influence of private manufacture has been negligible.

54. To-day, in addition to many of the origins and predisposing causes of past wars, we have many new factors that tend to disturb the peaceful progress of mankind: vast internal upheavals in many countries; widespread financial confusion and economic depression; the springing up of systems of government of a kind almost unknown in modern times; successions of startling and sometimes tragic internal events occasioning great international misgiving, especially in adjacent countries; the weakening of treaty obligations; the use of wireless broadcasting for propaganda across territorial boundaries; the growth of militarism in many countries; large-scale re-armament; and perhaps worst of all the menace from the air. These new factors, combined with all the old causes of disturbance—secular quarrels, minority difficulties, irredentism, insoluble territorial problems, and so forth—are the real obstacles against which the League of Nations and peace-loving countries have to contend. In the vast complex of disturbing factors private arms manufacture, even if the case against it was made good in detail, would be a negligible factor. As a serious cause of unrest it is a figment of the imagination of its opponents. Its abolition would not touch the real causes of international unrest. It will now be shown, however, that in detail the case against this industry, as submitted to the Royal Commission, is no stronger than the general case.

PART V

THE CASE IN DETAIL.

55. The plan adopted for examination of the more detailed evidence against private manufacture of and trading in arms is to take the six heads under which the alleged objections are grouped in the Report of the Temporary Mixed Commission, and to marshal as much of the evidence as possible thereunder. Points remaining over that do not fall under any of them, and have not already been dealt with, are considered separately. Two of these

points namely, the alleged incompatibility of public duty and private interest and profit out of war, almost belong to the general case and are therefore taken first.

(i) THE ALLEGED INCOMPATIBILITY OF PUBLIC DUTY AND PRIVATE INTERESTS.

56. The assumption is made extensively and sometimes plausibly in the evidence that in private manufacture of arms public and private interests are inextricably involved. This is the foundation of a

considerable part of the case against British manufacturers. The suggestion is that, whilst a chairman or director of an armaments firm as an ordinary citizen may desire the success of efforts to reduce armaments, in his professional capacity he must deplore such reductions. From this the argument is extended to suggest that the firms work for conditions which will increase their armaments. To quote one witness, "They are not merely scrambling for shares in a cake of predetermined size, but are working to enlarge the cake;"* or another witness who described the "major evil" of private manufacture as follows:—

"that it creates a permanent vested interest which leads men of high probity and public spirit to exert a continuous and sometimes exceedingly influential pressure against the policies of organised peace and disarmament and in favour of armament increases of different kinds."†

57. Illustrations of this widely held assumption have already been given in paragraphs 31 and 32. The very first witness before the Royal Commission also devotes a long passage to it (1st Day, p. 5), for example:—

"There is no doubt that the armament firms, very naturally from their point of view, use whatever influence they may have—possibly legitimate influence—with the governments of their own countries, to prevent any steps which will interfere with the success of their trade."

Or again, even more definitely:—

"To my mind it does not really require a great deal of labouring, because it seems to me perfectly plain that if you have great financial interests whose profits depend upon the existence of a state of tension or hostility between foreign countries, you must have, therefore, a great interest which will be affected by a pacific policy and will benefit by a policy that is not pacific" (1st Day, p. 5).

Another witness says:—

"The firms which make and sell armaments for private profit must desire conditions in which there is an effective demand for their products; and this motive force, operating under present conditions, must have the effect of promoting an expansion of sales of armaments and of impeding agreement upon that all-round reduction of armaments which the world urgently needs" (2nd Day, p. 45).

A third witness says:—

"I speak from the common sense point of view that manufacturers, of whatever commodity, must obviously desire expansion of demand, and therefore naturally take all steps possible to increase that demand" (2nd Day, p. 59).

It would, however, be tedious to continue quotations on a subject that is one of the leading motifs of the case.

58. Very little evidence is offered against British manufacturers of arms and munitions under this head, and the Royal Commission is taking evidence from them at first hand.

59. This unworthy suggestion that individuals cannot separate their private interests from their public duty as citizens cuts deep into civilised society. Doctors, pharmaceutical chemists and nurses depend for their profit on ill-health or disease. It would be outrageous to suggest that for that reason they try and encourage epidemic disease or are lukewarm in the promotion of public health. Companies concerned in crematoria, cemeteries, or undertakers, would make greater profits when the death-rate is high. No one in his senses suggests that for that reason they try and increase the death-rate—one must go back to stories of the great plague for that. Barristers draw their fees from advocacy in the courts, but they do not for that reason advise their clients to undertake unnecessary litigation.

60. The principle could be extended to many consumable commodities which, though valuable in moderation, are highly deleterious, and fatal to life itself, if taken in excess.

61. Why should evil motives be imputed only to those who manufacture arms? Why should their industry alone be nationalised?

62. The truth is that, if this class of misdemour were found to exist in this country to an appreciable extent, to prohibit private manufacture and trading in arms would only touch the fringe of the evil.

Holding of shares.

63. This imputation, however, is by no means confined to armament manufacturers. It is suggested by several witnesses,* for example, that Cabinet Ministers and other influential people owning shares in firms which manufacture armaments would be inclined to support a policy of increasing orders for armaments and to discourage disarmament and other pacific measures in order to benefit their private incomes. Some of the witnesses go further and suggest that Members of Parliament holding similar shares would thereby be more inclined to support the armaments policy of the Government. It is true that most witnesses who make this point are careful to avoid accusations against individual Ministers whose names are mentioned, but nevertheless there is an atmosphere of nasty insinuation about this kind of evidence and a definite statement that:—

"So long as such holdings can be owned by Ministers of the Crown and Members of Parliament, the advocacy in Parliament of an active policy of general reduction of armaments must be to some extent in danger of being tempered by consideration of the private interests involved."†

64. To one who has passed the greater part of a long official career in close contact with members of successive governments, the civil service and the defence services,† it is difficult to imagine how such outrageous insinuations can be seriously made. It is absolutely essential for all persons concerned in government, completely to separate their private affairs from public business, and although as long intervals transgressions may have come to light and been dealt with, it may be taken that the machine of government as a whole is absolutely exempt from the operation of private interest. Even if it were not, it is unlikely that a manufacturer would exercise his influence in the sphere of armaments, where the sums to be made by increased dividends would be insignificant compared with what he could make on the stock exchange if he were sufficiently skilled to be able to use his knowledge. And if a Minister or official holding shares in armament firms were able to improve his personal income by such malpractices he could do just the same, and probably with greater safety, if he were the holder of shares in many other classes of company.

65. Moreover, the prohibition of private manufacture would not check the evil if it existed in the government service. For example, if the manufacture of arms were a government monopoly, the manufacturer might promote an increase (say) in naval armaments in order to better the position of firms manufacturing materials or accessories for ship construction that would not be manufactured by the state factories but by outside firms. Or he might sell information to the press or to interested persons outside the government.

66. The system under which this country lives assumes a certain standard of probity throughout all classes of the population. Cases come to light, of course, where this standard is departed from: *cujus hominis est errare*. Nevertheless, broadly speaking, the standard of honesty is a fairly high one. The evidence against the private manufacture of and trading in arms seems to suggest

* 2nd Day, p. 46.

† 10th Day, Appendix, paragraph 20, p. 263; and similar statements in paragraphs 31 and 35, p. 264.

* 2nd Day, p. 48; 3rd Day, pp. 54-56.

† 2nd Day, p. 48. See also, 7th and 8th Days, Q. 1007, p. 160.

‡ So far as the standards of the Crown services are concerned, see paragraph 130 and Annex XII.

that in this branch of industry a lower standard prevails. I submit that this has not been proved and that this particular argument should be rejected.

(ii) PROFIT OUT OF WAR.

67. Very similar considerations apply to the case of "profit out of war,"* and "the profit motive," catchwords that have caught the public attention and are among the bases of these attacks. The phrase "profit out of war" has a different ring if, for the word "war," is substituted some more appropriate terminology, such as "means of defence," "protection" or "deterrent to aggression," all of which, as shown above, are applicable to the normal production of our own private manufacture, especially in this country with its strong instincts towards peace and collective security.

68. In a passage quoted above in paragraph 31 a witness says that "the manufacturer of armaments must desire the continuance of conditions in which there is a demand for his products, and he must be under temptations to stimulate, by whatever means are open to him, that demand." Another witness says that private manufacturers "are by the nature of their business driven to work for the increase of existing armaments." (10th Day, Appendix, paragraph 31, p. 266). The argument has been used in different language by many witnesses, for it is part of the "general case." Why should the temptation for profit be greater in the case of the manufacturers of armaments than in that of the doctors, the chemists, the chemical manufacturers, the undertakers, the proprietors of crematoria and cemeteries, or the lawyers? Why should these witnesses deny to the controller of armaments manufacture the virtues, the common honesty and decency on which civilised society is based?

69. There are many people, apart from the armament manufacturers, who make profits out of war. Let anyone reading this evidence think of his own friends who have made profits out of war. They would probably include persons interested not only in the early stage of arms manufacture, such as the production and transport of raw materials of all kinds, of steel, the refining and production of non-ferrous metals and so forth, but also people concerned in some forms of banking, merchant shipping and its construction, insurance, oil fuel, coal, many kinds of textiles, boots, motor transport, medical and surgical supplies, electrical apparatus, boilers and engines, railway material, motor cars and lorries and a vast range of other commodities essential both to civil life and to the maintenance of the forces by sea, land and air. Are all these forms of business to be nationalised? If not, why is it proposed to nationalise only the arms industry? To justify that measure it will be necessary to prove much more than that manufacturers of arms make profit out of war.

70. There are many more reasonable methods than abolition of private industry for checking excess profits, such as those adopted by the Ministry of Munitions in the Great War, as well as income tax, super-tax and excess profits taxes.

71. In these and perhaps other ways the State can deal with profiteering not only by private manufacturers of arms and munitions, but also by other trades, industries and professions that make excessive profits out of war.

72. Prices can, of course, be dealt with on the lines adopted by the Ministry of Munitions in the Great War and by methods such as those being employed by the Air Ministry during the present expansion of the Royal Air Force and also by the Admiralty and the War Office in many of their non-competitive contracts (when such contracts are made with due ministerial authority). But this is bringing me on to technical ground, where the Royal Commission can obtain first-hand evidence from government departments. I will only add that the

problem of keeping prices and profits within reasonable bounds in war has not been neglected by the departments concerned.

(iii) FOMENTING WAR SCARES AND DISSEMINATION OF FALSE REPORTS.

73. The two above points are so similar that they will be taken together. The full text in the report of the Temporary Mixed Commission is as follows:—

Point 1.—"The armament firms have been active in fomenting war scares and in persuading their own countries to adopt warlike policies and to increase their armaments."

Point 3.—"That armament firms have disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armament expenditure."

74. Some of the general accusations in the evidence under this head have been quoted textually in paragraph 18. They are very damning and convey an implication of a continuous process of inflaming public opinion, etc.

75. So far as I can ascertain, the only pre-War charge against British firms under these headings is the case of Mr. Mulliner, from 1906 to 1910, which has to do duty for both points.

76. The hard-worked Mulliner episode is mentioned in the following evidence:—

League of Nations Union. 1st Day. Page 4.
The National Peace Council. 2nd Day. Pages 46 and 60.

The Independent Labour Party. 5th Day.
Pages 151, 152, 153, and 156.

The Union of Democratic Control. 7th Day.
Page 138.

Mr. Noel Baker. 10th Day. Page 230 and Appendix, paragraph 11.

Also, from the opposite point of view, by Mr. J. T. Walton Newbold. 5th Day, pages 138, 144 and 145.

Admiral Sir Reginald Bacon. 11th Day. Page 311.

In view of the extensive resort to this example it appears essential to clear it up.

THE MULLINER CASE.

77. The facts as to the Mulliner case have not been stated in full by any witness up to the present. The full story is to be found in a memorandum prepared by the Admiralty (Annex VI).

78. It will be seen that Mr. Mulliner was concerned in two distinct episodes or, if it is preferred to put it differently, that there were two distinct phases of the Mulliner episode.

79. The first episode, from 1906 to 1909, concerned a period when Mr. Mulliner was engaged in giving information to the Admiralty and to the government, mainly as to the increase that was being carried out in Germany's capacity to manufacture heavy guns and mountings which would render possible an acceleration of her naval programme.

80. The second episode concerns the political controversy which broke out later in 1909 and culminated in the general election of 1910, in which the case of Mr. Mulliner played a part. In this controversy mention was made in public of the fact that during 1909 Mr. Mulliner had been compelled to resign his post as managing-director of the Coventry Ordnance Works, and complained that he had been victimised.

Remarks on the first episode.

81. Presumably no one would be inclined to blame Mr. Mulliner for bringing his information to the government in 1906. Any patriotic citizen, who in the course of his business or otherwise, acquires information on any subject which he believes to be correct and to bear on the interests of his country, has surely the duty of passing it on to the government, so that it may go into the general pool of intelligence on which the government have to base their decisions. I have no little doubt that there are members of this Royal Commission who have from time to time given the government information on subjects within their own range—though not on armaments. It is a very common practice, and is

* The subject crops up so constantly that it is unnecessary to marshal the evidence.

would be a great loss to the government if this close intercourse between the government and private business of all kinds came to an end. As will be seen from Annex VI the information that Mr. Mulliner gave in 1906 was confirmed from other sources and proved correct. The fact that he was the representative of an armaments firm did not, I submit, exempt him from the patriotic duty of notifying his information to the government. Mr. Mulliner himself did not conceal that he wanted orders for his firm, but he maintained that he only wanted to tender for these in fair competition, and he repudiated suggestions that he was only making these statements to induce the Admiralty to place orders.* Whether Mr. Mulliner overplayed his hand in pestering the government too much does not appear to bear in any way upon the questions before the Royal Commission.

82. Moreover, it will be seen from the account in Annex VI that Mr. Mulliner's information related not to the number of ships that Germany had laid down, but to her capacity for manufacturing gun mountings, one of the "bottle-necks" in the construction of warships, and that the information was confirmed from other sources. Further, that the increase of four Dreadnoughts to the government's programme of 1909 was based on information besides that of Mr. Mulliner. In the Admiralty's memorandum it is pointed out that "Had the four ships not been built, we should have fallen seriously below the superiority which it was the policy of the government to maintain."

83. In any broad review of the reasons which led to that increase the Mulliner episode played a very small part. It is not, so far as my researches go, even mentioned either in Mr. Churchill's account (*The World Crisis, 1911-1914*), nor in Mr. Lloyd George's *Memoirs*, nor in the *Life of Lord Oxford and Asquith* (J. A. Spender and Cyril Asquith), the pertinent extract from which is attached in Annex VII.

Remarks on the second episode.

84. The second episode, which relates to Mr. Mulliner's public activities, was concerned very largely with his alleged victimisation. The Admiralty's account says that Mr. Mulliner apparently had felt aggrieved by the neglect to act upon his information, and particularly aggrieved that his firm obtained no orders for gun mountings. There seems no doubt that he had communicated his information to the Opposition,† and it may be due to this fact that his appointment at the Coventry Ordnance Works was terminated. It appears clear also that no substantial orders were given to the firm so long as Mr. Mulliner remained managing-director.]

85. So far as I have been able to ascertain, apart possibly from his communications to the Opposition, he did not play a personal part in public controversy until 2nd August, 1909, on which date a letter from Mr. Mulliner appeared in *The Times*. From that letter it transpired that he had already left the Coventry Ordnance Works, for he speaks of "my then capacity as managing-director of the Coventry Ordnance Works," thereby indicating that he no longer occupied that position. From that time on his position, therefore, was that of an ordinary citizen taking part in an election controversy. Whether he had terminated his connection with the Coventry Ordnance Works when he gave information to the Opposition (or press) I have been unable to verify.

86. Mr. Mulliner was warmly defended by his friends at the time. Lord Cavendish, the then late First Lord of the Admiralty, went so far as to say "he thought Mr. Mulliner deserved the Order of Merit"‡. § Mr. Duke, now Lord Merivale, defended him in Parliament on 16th March, 1910. Without

going into merits, it is pertinent to ask whether, in the light of after events, Mr. Mulliner or his detractors had more right on their side as to the need for building more ships.

Conclusion.

87. To sum up, I submit:—

(i) That in giving information to the Government from 1906 to 1909 Mr. Mulliner was doing no more than his duty as a British citizen; that he would have been failing in his duty had he not done so:

(ii) That the information he gave in 1906 as to Germany's increasing capacity for manufacture of guns and mountings proved to be true, and consequently he was not disseminating false reports or fomenting a war scare:

(iii) That there is no evidence that Mr. Mulliner ever said that Germany would have 17 (instead of 13) Dreadnoughts by 1912. All he said was that, so far as guns and mountings were concerned—one of the "bottle-necks" of capital ship construction—Germany had the capacity to accelerate. The Admiralty decided in 1909 to build the four extra Dreadnoughts on the basis of information other than Mr. Mulliner's. Whether the Germans had accelerated by 1912 or not is immaterial to the story, as Mr. Mulliner never claimed to know that they would. He only claimed that in certain important respects they could. As a matter of fact, however, the extra Dreadnoughts proved necessary, for, as events turned out, our strength in Dreadnought battleships and armoured cruisers was short of our declared policy of superiority over the German navy:

(iv) That in pestering the Government to the extent he did, and perhaps in revealing to the Opposition the information he had given to the Government, Mr. Mulliner was undermining his own influence—to the point that, according to his own account, he lost his job. This tells against the theory that his only object was to get orders for his firm.

(v) That the part he played in the newspaper controversy in the autumn of 1909 and in the campaign prior to the general election of January, 1910, does not bear on the story, as by that time Mr. Mulliner had ceased to be managing-director of the Coventry Ordnance Works and was no longer in a position to obtain orders: it is clear also that he was by that time a man with a personal grievance:

(vi) That, as shown by the parliamentary debates and the press of 1909, the question of the four additional Dreadnoughts had become a political one of the first magnitude. "We want eight and we won't wait" was the political slogan. One great political party was gravely concerned, as were many other people, including some members of the Cabinet. Mr. Mulliner was a negligible factor, and the armaments firms as a whole seem to have taken no active part in the controversy:

(vii) That, in the vast complex of origins of the War and disquieting tendencies between 1905 and 1914, this one episode that has been produced as evidence of activity by British armaments firms in fomenting war scares is negligible; and that this one overworked example—a very poor one at best—is not evidence against British firms in these respects.

POST-WAR ALLEGATIONS AGAINST BRITISH PRIVATE MANUFACTURE. (HEADS 1 AND 3.)

88. Scarcely any evidence has been offered that British manufacturers of arms have fomented war scares or persuaded their own country to adopt warlike policies or to increase their armaments, or that they have disseminated false reports concerning military and naval programmes of other countries in order to stimulate armament expenditure.

89. The Independent Labour Party, who examined the "six points" in some detail, prefer no such charge except in the case of Mr. Mulliner. The

* *The Times*, Friday, 17th December, 1909, p. 9.

† This is clear from the debate in the House of Commons on 28th July, 1909. Admiral Bacon says he gave it to the press. (11th Day. Q. 1515).

‡ Speech at Leeds, reported in *The Times*, 20th December, 1910.

§ *Ibid.*

National Peace Council mentions one such case, namely, Mr. Fairley's interview, published in the *Daily Mail* of 5th January, 1934. Mr. Arnold Forster's statement on this point mentions that "Between October, 1933, and the early months of 1934, the *Daily Mail*, followed by the *Daily Mirror*, was conducting a campaign in favour of a large increase of the British Air Force".* The dates should be noted. The *Daily Mail* and the *Daily Mirror* had already begun their campaign months before Mr. Fairley intervened. That is not criticised. Apparently a newspaper is entitled to urge its readers to increase armaments, but the moment an aircraft manufacturer does so he is "fomenting war scares" or guilty of one or other of the alleged "evils" grouped under this head.

90. As a matter of fact it was public knowledge at this time that Germany was increasing her armaments. As Mr. Baldwin explained in a speech in the House of Commons on 22nd May, 1935 (quoted in Annex IX) the Government had been made aware of the deterioration in the international situation and was actively engaged in considering the position. Mr. Fairley's interview could hardly be described as an example of "fomenting war scares" or "disseminating false reports", for the situation was in fact already serious; but at the time when he was trying to persuade his own country to increase its armaments the Government itself was already working out the increase announced in the following July.

91. It may be remarked in the case of Mr. Fairley, as in that of Mr. Mulliner, that the influence of anything he had to say was negligible compared with the other forces that were operating on public opinion, namely, speeches in Parliament and outside, the press, and, above all, the facts of the situation.

92. In this connection, the following note, supplied by the Air Ministry, has an important bearing:—

"As regards (3),† the Intelligence Division of the Air Staff state that no evidence has ever come to their notice of British armament firms supplying false reports to the Air Ministry in regard to the armament programmes of other countries. Armament firms are, indeed, usually without very much information about the trend of Service air developments in foreign countries. It is in any case altogether improbable that this, or indeed any, country's armaments programme would be stimulated by false reports furnished by armament firms as to what other countries were doing. A programme of expenditure is based on something sounder than uncorroborated information from private sources, and is not approved and put into execution in such haste that a scare, if it were a false one, could not have been unmasked before it was too late. Certainly no British air armaments programme has even been adopted as the result of information, whether correct or false, furnished by armament firms. There is no evidence, whatever, so far as the Air Ministry is concerned, for this particular allegation."

See also the Prime Minister's answer to Mr. Mitcheson's question quoted in paragraph 20.

93. I have not been able to find any other evidence that could properly be dealt with under these headings. The indictment is that "armament firms have been active in fomenting war scares," etc. The evidence quoted in paragraph 18 speaks of "the constant inflaming of public opinion." In fact, as already mentioned in paragraph 74, the general charges quoted textually in paragraph 18 convey the impression of a continuous process of inflaming public opinion, etc. I suggest that the evidence, based as it is on two very feeble illustrations, does not even remotely bear out any such charge.

* 2nd Day, p. 46, and again on p. 48.

† Note.—(3) refers to the allegation that armament firms have disseminated false reports concerning the military and naval programmes of various countries in order to stimulate armaments expenditure.

94. I submit, further, that, as shown above, the latter case has not been made good in the evidence, and that, if the matter is to be put in proper perspective, the Royal Commission might consider the other influences operating to foment war scares, and so forth.

95. They would not have to search very far back to find overwhelming evidence of such influences in the press of many countries (false news, premature announcements, scare headlines and posters, and so forth) which again and again, weekly, if not daily, have served to set one country against another. They would find them in foreign wireless propaganda, whether for consumption at home or abroad; in propaganda books and pamphlets; in educational curricula; in the speeches of responsible leaders; and above all in actual events. One might even ask whether, on a long view, pressure for such measures as unilateral disarmament is not liable, by bringing armaments below the safety line, to create alarm when emergencies suddenly arise and so to inflame public opinion.

96. Compared with such influences, that of the private manufacturers of armaments is, I suggest, negligible.

(iv) INTERFERENCE IN DISARMAMENT CONFERENCES.

97. At this point it may be convenient to deal with the charge made in much of the evidence that private manufacturers of arms and munitions endeavour to prevent disarmament conferences from reaching a successful result.

98. Except in the case of the Geneva Disarmament Conference, where vague insinuations of indirect action have been made, which are dealt with in the next paragraph, no charge is made against British manufacturers of arms and munitions under this head. The case rests on a single example—that of Mr. Shearer, a citizen of the United States of America—the facts of which have received wide publicity. Lord Cecil describes the effect of Mr. Shearer's activities as follows:—

"I was present myself at the negotiations . . . I would not like to say for a moment that it was entirely Mr. Shearer's efforts that prevented the Treaty being made, but it is undoubtedly true that the suspicion and doubt which existed as to the policy of the British and American Governments produced the kind of atmosphere which brings about the failure of international negotiations, and I cannot help feeling that it would have been a decided advantage if Mr. Shearer had not been present at Geneva." (1st Day, p. 5.)

99. A brief note by the Admiralty on the Shearer episode is attached in Annex VIII. Their views on the results of Mr. Shearer's activities are stated in the last paragraph of the note as follows:—

"Whatever may be thought of Mr. Shearer's activities, it seems clear that they did not in any way affect the result of the 1927 Naval Conference. The differences between the Governments of this country and the United States were of too fundamental a character to have rendered agreement possible at that time, and it was only after a series of discussions and compromises that agreement for a limited period was reached at the London Naval Conference of 1930."

100. As an old inhabitant of international conferences and as one who was at the heart of the only two successful disarmament conferences in the history of the world (the Washington Naval Conference, 1921-1922, where I was Secretary to the British and British Empire Delegations, and the London Naval Conference, 1930, where I was Secretary-General) I should like to say that, apart possibly from the usual ventilation of every point of view in the press, I have never heard of even a suspicion of interference of any sort, kind, or description by armament firms in the work of the conference. This might have been expected, if ever, at these two conferences, as, in the case of the former, they were losing contracts for huge capital ships, as well as prospective orders in the case of both conferences. Nevertheless, they made no move

so far as my knowledge goes. Persons with long experience at the Geneva Disarmament Conference report a similar experience. Such interference is altogether exceptional and probably confined to the one case of Mr. Shearer. And as to the false rumours that "used to spread like magic through the lobbies" of the Disarmament Conference, and which a witness attributes to "Mr. Shearer's spiritual brothers" (10th Day, pp. 231 and 232), they have been part and parcel of every international conference I have attended, from Paris to the World Economic Conference, whether concerned with the making of peace, disarmament, reparations, finance or economic conditions. They often occur when things appear to be going well. These attempts at sabotage may emanate from any quarter which feels dissatisfied with the course of events, and are just as likely to come from the left as from the right, or even from some official delegation, whose discipline is lax or team-work bad.

101. For example, some of the organisations that include promotion of disarmament among their principal aims are at times very active at international conferences—in my experience far more so than the private manufacturers of armaments. Their proceedings include the presentation of huge petitions or memorials, deputations to ministers, influencing the press, representation by special observers, some of whom do not hesitate (even when the conference is meeting in private) to lobby ministers and even officials in the suburbs of the conference. So long as their activities are limited to general support to the cause of disarmament these societies may do good. But when they start to criticise particular proposals, or the attitude of particular delegations, they may do harm. If they attack the delegation of their own nation in their own press and criticise it in conversation with members of other delegations they may give a false impression that public opinion is not behind their delegates, whose policy may be actuated by reasons they cannot divulge without damage to the public interest. Or, if they criticise some foreign delegation for its attitude it may harden the public opinion of that country behind its delegates and make it more difficult for them to compromise. Disarmament conferences are the most difficult of all international transactions. They arouse great anxiety in many countries lest security should be jeopardised. Every delegation has its own problems to safeguard. Usually the only hope of success is to arrive at some highest common denominator on which agreement can be reached. To aim at more may easily wreck the whole thing. The best will often be the enemy of the good. The atmosphere is at times highly charged; the problem of the statesmen concerned most delicate. In such circumstances guerilla allies only partially informed of the underlying circumstances, pressing perhaps for the impossible, may have precisely the effect that Lord Cecil attributes to Mr. Shearer of increasing an atmosphere of suspicion and doubt and producing or contributing to "the kind of atmosphere that brings about the failure of international negotiations."

(v) BRIBERY AND CORRUPTION.

Point 2.—"That armament firms have attempted to bribe Government officials, both at home and abroad."

Bribery at home.

102. No evidence has been offered against British firms manufacturing armaments of bribery at home. There is, however, a criticism of the fact that a certain number of British public servants have, after retirement, accepted posts in armament firms, whether as directors or officials. This is dealt with from a general point of view below under a separate sub-head. In considering both points, however, particularly so far as this country is concerned, it is necessary to bear in mind the system under which orders for armaments are settled and placed.

The British system for deciding and placing armaments programmes.

103. First it is necessary to consider how the policy is decided. This has been described several times in Parliament. The first stage is the presentation to the Committee of Imperial Defence by the

Chiefs of Staff Committee of an Annual Review of Imperial Defence, which is based on a review of the international situation by the Foreign Office, on corresponding information from other government departments, including the Colonial Office and the India Office, and on reviews of various detailed aspects of imperial defence by sub-committees and by the secretariat.

104. The Annual Review by the Chiefs of Staff is completed in time to provide a guide to the defence departments in the preparation of their estimates as to the priority of importance of the various items of expenditure on imperial defence. After consideration by the Committee of Imperial Defence the Review is forwarded, with the remarks of the Committee, to the Cabinet.

105. The Cabinet may either note or approve the report, or may take special steps in regard to it. For example, in 1933, as Mr. Baldwin told the House of Commons on 22nd May, 1935 (Annex IX), owing to the serious situation revealed by the Annual Review more detailed inquiries were undertaken, first by an official sub-committee of the Committee of Imperial Defence, and afterwards by a Ministerial body presided over by the Prime Minister. The first result of these inquiries was the Royal Air Force programme announced in July, 1934.

106. This first stage, that of policy, is necessarily conducted in complete secrecy. It is based on a weighing up of very broad considerations—foreign policy for the maintenance of peace, disarmament policy, financial policy, defensive policy, and so forth. A good many ministers and officials are concerned in it, and it would be absolutely impossible to influence the policy by any kind of pressure on so many individuals—even if such a thing were conceivable.

107. The estimates of the defence services, which give effect to the Government's policy, are drawn up by the defence departments and submitted by them direct to the Treasury, which department, being represented by the Prime Minister and Chancellor of the Exchequer in the Cabinet and in the Committee of Imperial Defence (which is attended also by the Permanent Secretary to the Treasury) as well as by officials on many sub-committees of the latter committee, is completely informed on all aspects of defence policy. This stage is also conducted in complete secrecy between the Treasury and the individual departments concerned, and it would be quite impossible, even if it were conceivable, for any outside person to exercise influence.

108. The Admiralty, War Office and Air Ministry have submitted evidence (which they are prepared to amplify) to show that, in the placing of orders, the precautions and checks are so stringent as to make malpractices extremely unlikely.

Bribery abroad.

109. Apart from quotations from the evidence before the American Inquiry, which I have not read, and on which I can throw no light, the evidence of bribery of government officials by British manufacturers abroad appears to rest mainly on the alleged bribery of a Japanese admiral during the four years preceding the War (5th Day, Appendix, p. 155).

110. A copy of a newspaper report of the judgment in July, 1914, is attached (Annex X). The judgment was not given in respect of any British subject, but of members of a great Japanese firm who acted as their agents in Japan.

111. As already shown in the proceedings of the Royal Commission (5th Day, p. 151, Q. 850), therefore, the agents' bribe was not given to increase the amount of the order, but in a case where the order for a single cruiser had been advertised, to enable one firm to secure the order from a rival. The bribes did not increase the amount of the expenditure on armaments. The method of stopping the bribery, namely, by action in the courts of the country concerned, was, surely, preferable to drastic action, such as the prohibition of private manufacture.

112. Two other examples of bribery by manufacturers of arms are mentioned in the evidence, but neither of them concerns British private manufacture at all, namely Dr. Liebknecht's allegations in the Reichstag in April, 1913, against Messrs. Krupp's agent in Berlin, and the Selezki case.

113. The Royal Commission would probably encounter great difficulty in establishing the facts or in drawing from them conclusions that would be likely to influence their report. In both instances the charges were against agents rather than armament firms, and government action was taken to clear the matter up.

114. If bribery abroad by private manufacturers of armaments were on such a scale as seriously to affect the volume of world armaments, it would have to be carried out in the countries which maintain large armaments. *Prima facie* this seems unlikely to occur, however, for several reasons; firstly because the great powers, which maintain a large proportion of the world's armaments, place the bulk of their orders within their own territories; secondly, because most of the larger countries have highly organised systems of government which must provide checks against bribery on a large scale; thirdly, because security necessitates the utmost care in the selection of armaments and bribery is not likely to be a decisive factor.

115. If bribery is limited to the smaller or less highly-armed states it will not seriously affect the volume of world armaments, since, broadly speaking, the armaments of great powers are measured by those of other great powers and are not much affected by those of the weaker states. Moreover the extent to which bribery could be resorted to is limited by the fact that it would rarely be possible except in those countries where corrupt practices of this kind are a common accompaniment of business contracts.

116. It is suggested that under this head of the indictment it has not been shown that bribery is an appreciable factor in the volume of the world's armaments.

Would government monopoly get rid of bribery?

117. The question now arises as to whether a universal system of government monopoly of armaments manufacture would eliminate the risk of bribery?

118. In the first place, as rather a minor point perhaps, it should be noted that there would remain outside of any system of government monopoly a large number of raw materials, semi-manufactured materials, accessories and components. The firms concerned in these commodities would be contractors to governments, and their agents would be dealing with officials of governments, at home and abroad, on a much wider front than at present; for the circumference of the official circle of armament activity would be greatly expanded as the result of governments taking over the whole armament industry. More opportunities for bribery of government officials would exist then than now, and this particular danger, on which some of the advocates of prohibition lay so much stress, would be intensified. Actually it is believed that under existing conditions this danger is virtually non-existent except perhaps in countries where trade bribery is common.

119. I venture to suggest, however, that there are wider grounds than the above for supposing that the institution of a world-wide government monopoly of armaments manufacture would not eliminate bribery to such extent as it may exist.

120. In the first place it must be remembered that the armaments-producing powers would have strong motives for obtaining orders for their state industries. I am aware that some witnesses have assumed the contrary, but I cannot share their view. The reasons for their assumption may be summed up as follows:—

(i) Governments, for reasons of economy, would wish to keep their own armaments as small as possible, and would have no incentive to stimulate an armaments increase abroad and so to increase the general level of armaments,

(ii) As prohibition of private manufacture would form part of a disarmament convention, governments would desire that it should be scrupulously observed, and would therefore avoid stimulating the growth of armaments in non-manufacturing countries.

(iii) For the same reason governments would have no interest in "qualitative improvement" in its own armaments or in those of foreign countries.*

121. The above suggestions do not correspond to realities. In many countries the interests of economy would come second, as they do to-day, to those of security—unless, indeed, we had arrived at a Utopia in which the causes of international suspicion had been removed.

The states that supply armaments would wish to see the armaments of any countries they regarded as a menace kept on as low a level as possible. And they would equally wish to see the armaments of their allies or potential allies maintained at the maximum size and efficiency permitted by any disarmament treaty. They would also wish to bind hesitating countries to them by ties of dependence in armaments.

122. By obtaining orders from these countries they would gain the following advantages:—

(a) Increased strength for their allies or potential allies.

(b) The political advantage of dependence upon themselves for repeat orders, spare parts, ammunition, etc.

(c) A military advantage in the increase in machinery, experience and war potential.

(d) An economic advantage in the employment given to their factories.

(e) The satisfaction that the orders had not gone to increase the political influence and war potential of the nations they regarded as a menace.

Outside the category of allies or potential allies, however, there would be a large number of non-producing states whose armaments (for geographical reasons or owing to their relatively small size) do not really affect the armaments of the producing states in any way, whether there is a disarmament convention or not. In the aggregate the orders of such states would be considerable. For these orders there would be a scramble by the producing nations, partly in order to help keep their state factories busy and increase their own war potential, and partly to prevent rival nations from obtaining the advantages of such orders.

123. I cannot accept the view that, under the system proposed, governments would lose interest in qualitative improvement. If someone, for example, were to invent an effective apparatus for bringing down aircraft, a faster aeroplane, a superior explosive, or for the matter of that any kind of technical improvement, everyone would want it, provided that it fell within the scope of any existing disarmament treaty. And there is ample scope for technical improvements within a disarmament treaty.

124. One would like to assume that governments would in no case resort to bribery, but, unfortunately, the assumption is not justified. If in some countries, governments or their officials can be bribed, as the advocates of prohibition maintain, they can also bribe! There have, for example, been many instances of bribery of a foreign press by governments, and it is notorious that the practice has not ceased in post-War times.

125. Apart from the cruder forms of bribery, however, there are many means of "inducement" open to governments that are not to the same extent available to private industry, such as easy terms of payment, financial accommodation, loans (see also under the heading "Solicitation"), rebates, trade treaties, political support in international disputes, mutual assistance arrangements and even alliances. One hesitates to mention orders and decorations—because in this country such inducements are out of

* Compare 10th Day, Appendix, paragraphs 35 to 37.

the question—but human nature is frail and the standards vary in different parts of the world. Whether some of the above "inducements" fall properly under the heading of "bribery" or belong to the order of negotiation and legitimate policy is a matter on which opinions may differ. Some examples are mentioned in the next paragraph.

126. Past history shows that, even under the existing system, such things have happened. An example is mentioned in Colonel Daniel's paper on the *British documents on the origins of the War* (Annex V), which occurred in 1906 in connection with the rearmament of the Serbian artillery, and of which a fuller account is given in Annex XI. It will be seen from this Annex that the Austro-Hungarian government, who wanted to get the order for their own arms, first did not allow the sample guns of foreign competitors to reach Serbia (though they had apparently promised to do so), and afterwards tried to force the Serbian government to place the order in Austria by refusing, if they did not secure it, to conclude a commercial treaty which they believed to be very important to Serbia. The Serbian government, however, called their bluff and eventually placed the order with Schneiders. The whole story became public and must have added not a little to the ill-feeling already existing between the two countries, and which later was to set the world on fire.

127. If these things have happened in existing conditions, when governments are concerned only in the second degree, they might become still commoner when they were concerned in the first degree as competing manufacturers and suppliers of armaments. The Royal Commission will probably agree that this would not add to the amenities of international relations.

128. One of the witnesses says:—

"Possibly evidence will be given to you, but I am not going to trouble you with it, of allegations which were made in the American Inquiry and elsewhere of disreputable methods. I do not think from my point of view that has much to do with it. The fact that a particular agent of a government has been bribed is not the point. The point is whether they were working for the sale of arms. Whether they did it reputably or disreputably does not matter to my mind. Therefore I am not going to bother you with that. I have no doubt you could find evidence of similar things going on in a great many other trades dealing with governments." (1st Day, p. 5.)

That extract places the issue succinctly. It is the sale of arms by private manufacture that the critics really object to. Bribery is a separate matter altogether which apparently still exists in some countries, and ought to be dealt with by itself without mixing it up with the arms controversy. If bribery is to be put an end to, as it ought to be, not only in the matter of arms contracts but of other contracts as well, the cure would seem to rest with the governments and peoples of the countries where these things happen, rather than by shutting down one of the many vast industries to which this evil must be an intolerable nuisance.

129. To sum up—it is suggested that questionable commercial methods of securing markets and increasing trade can probably be found to exist in some countries in connection with the sale of most commodities. Experience shows, moreover, that the methods pursued in any country reflect to a large extent the standards of commercial and public morality that exist there. If, for instance, the allegation referred to by the Temporary Mixed Commission in 1921 that the bribery of government officials is a practice of private armament firms is true in any country, it is probably because bribery is condoned by the standard of conduct there in force. The evil, even so far as armaments are concerned, will not be eliminated by abolishing private trade in arms. In the main the cleansing of this, as of any industry, depends upon the pressure of a healthy public opinion in the country concerned.

(vi) EMPLOYMENT OF BRITISH EX-GOVERNMENT SERVANTS IN PRIVATE MANUFACTURE.

130. This subject, to which several witnesses have called attention, will it is understood be dealt with by other official evidence. It will be shown that the checks provided in the public service are such that there is no risk of bribery and corruption arising from such instances, even if the high standing of our public services were not of itself a guarantee against this abominable insinuation. In this connection perhaps the Royal Commission would like to read paragraphs 54 to 59 of the report of Sir Warren Fisher's inquiry of 1928 (Cmd. 3037/1928), which sets forth what our British standards are, and which have the general imprimatur of governments. A copy is attached as Annex XII.

131. As a general observation I suggest that there are advantages in such appointments (many of them technical in character), especially in time of war, owing to the fact that this ensures that, in the firms which supply a large proportion of our armaments, there are people who know the requirements of the defence services at first hand, and who can, so to speak, "speak the same language." It would, I suggest, be detrimental to our supply services, especially in war, if such attachments were prohibited. As Sir William Jowitt puts it—"I realise, and it is perhaps fair to say this, that such a system is perhaps inherent in the private trade in armaments. You cannot run an armament firm if its directors and management are going to be—what shall I say—a lot of lawyers?" Moreover, the government has to give contracts to firms dealing with many commodities besides armaments, and in many of these ex-government servants are to be found at work. Are such posts also to be barred to ex-government servants? If so, officers retrenched from the defence services or who have to retire in the prime of life will be hard put to it to find a living. As an illustration of how innocuous such appointments are it may be mentioned that the Bren machine gun (the invention of a foreign firm) was adopted in spite of the fact that a British firm had produced a rival weapon and that a late Master General of the Ordnance is one of the British firm's directors and its chairman a late Chief of the General Staff.

(vii) INFLUENCING THE PRESS.

Point 4.—"That armaments firms have sought to influence public opinion through the control of newspapers in their own and foreign countries."

132. It can hardly be denied that the opponents of private manufacture have sought to influence public opinion through newspapers in their own and foreign countries against such manufacture, even to the point of seeking its prohibition by law. Some of the societies have their own periodicals, which have been used incidentally for this purpose, and they exercise a strong influence in a section of the British press.

133. In spite of this provocation by their opponents the British private manufacturers whose business includes arms manufacture have remained comparatively quiescent. There is, I think, little or no evidence offered against them under this head except Mr. Noel Baker's case against the technical aviation press (10th Day, pp. 233 and 234, and statement of evidence, paragraphs 17A to 20). Mr. Noel Baker's case, as I understand it, is that most of the periodical journals devoted to aviation took a strong line against the proceedings of the Disarmament Conference (supported by numerous extracts); that these journals have such a large number of advertisements from aircraft companies that they could not carry on without them; and that "this business of a technical press which depends on an industry is an inevitable result of private manufacture, and is very unfortunate" (10th Day, p. 234). So little are technical journals under the control either of the Air Ministry or of the trade that, as I am informed, they frequently criticize both the one and the other for their supposed shortcomings. Apart from this I would observe that,

whatever may be its importance from a technical point of view, the influence of the technical press on policy has been greatly exaggerated. It could be said with confidence that few, if any, of the Ministers (on whom responsibility for policy lies) have time to study, even if they ever see, the technical organs mentioned by Mr. Noel Baker, and those officials whose duty it may be to see them would never be influenced in the slightest degree so far as policy is concerned.

Among the examples of the supposed misdeeds of the technical aircraft press is cited an advertisement which appeared in *The Aeroplane* of 18th July, 1934, of a British aircraft of Service type—it was actually a British Bulldog—which was shown with swastika marking and which Mr. Noel Baker assumes was exported to Germany while we were still contesting that country's right to have an air force (10th Day, p. 234). The machine in question was actually supplied to Finland, which also flies the swastika, but with the arms reversed, so that the whole point of the reference to this case falls to the ground. Mr. Noel Baker also criticises the propaganda of those journals (and the "patriotic societies") in favour of a larger Air Force in order to increase our defensive preparations. He offers this as "a unique, but little noticed, example of which I have called the 'major evil' . . ." In the same way his opponents would have an equal right to protest against the journals and propaganda of the societies that advocate disarmament, and especially unilateral disarmament. But all that belongs to the wider question of the right of free expression of opinion.

134. There is, also, a certain amount of allegation against foreign arms manufacturers, but it would be difficult to get to the bottom of that.

135. On this subject, again, it is necessary to appeal for proper perspective. The question of control of the press is a very large one. Suppose it be true that armaments interests abroad have controlled or do control what at most can only be a small number of newspapers, what is the amount of influence they can exert in comparison with other influences? In several "authoritarian" states, for example, government control is so complete that the press can be turned on to public opinion like a hose to saturate it with whatever policy the government has decided to pursue. It is not usually a good advertisement for government control of anything. * Apart from governments, there are innumerable other influences at work in the press of all countries. Would the disappearance of private manufacturers make the slightest difference to the stream of scare headlines, premature "leakages" of official information, and dubious or tendentious news that in most countries does so much, in some types of newspaper, to disturb international relations? How does the influence of firms manufacturing armaments compare with that of the individual owners of whole groups of newspapers, of political parties, of individual statesmen, and even of governments?

136. Some of the collections of documents on the origins of the War published abroad contain remarkable testimony to the importance attached by foreign governments to securing the goodwill of the press in countries other than their own, as well as evidence of money spent to ensure this aim. There are allegations in the diplomatic correspondence of these times also of bribery of the press by banks.

137. Unfortunately, as already mentioned, bribery of a foreign press by governments is by no means a thing of the past.

138. The conclusions under this head appear to be:—

(i) That against British private manufacture no case has been made out of influencing public opinion, through the control of newspapers at home or abroad, though the weapon of the press has been resorted to by its opponents in order to bring about its downfall;

* See also paragraph 46 above re government action on the press.

(ii) that the case against foreign private manufacture, unavoidably perhaps, is vague;

(iii) that the tendency of the evidence on this point is, as usual, out of perspective, since the influence that could be exerted on public opinion through the press by armaments manufacturers is very small compared with that of other influences;

(iv) that the prohibition of private manufacture and the institution of government monopolies would not prevent this alleged evil, since there have been many instances of governments who have "sought to influence public opinion through the control of newspapers in their own and foreign countries," and might resort to this method for obtaining orders for their state armament industry;

(v) that, in countries where the press is venal, the proper corrective is to be found in exposure and the creation of a healthy public opinion—a matter for the governments concerned.

(viii) SOLICITATION.

139. "Solicitation" or "touting"—the characteristic terms used by the critics of private arms manufacture to describe efforts to obtain orders—is not specifically mentioned among the six points mentioned in the Temporary Mixed Commission's Report. Since, however, the subject has been raised, it may conveniently be introduced at this point. These terms, with their sinister echo of the street and the police court, seem the wrong words to use of a firm which, having something to sell—often consisting of devices for pure defence such as anti-aircraft guns, coast defences or gas masks—tries hard to sell it. Surely this is merely an "endeavour to secure orders".

140. Presumably, there is no objection to a firm tendering for orders from a government which has announced a programme of armaments and called for tenders. For reasons already explained, that is likely to cover a very large proportion of the orders received.

141. What is objected to in the evidence is rather the alleged practice of firms to seek orders from governments, perhaps apart from their advertised programmes, for particular weapons. Most of the evidence on this subject is culled from the evidence given before the American Inquiry. Naturally I can throw no light on these cases.

142. The alleged "evil" of solicitation is dealt with effectively in the following extracts from the Royal Commission's proceedings:—

"We have no evidence as to how far solicitation is used by armament firms in this country, but we suggest that notions are not because they are solicited but because they are afraid. Solicitation admittedly may act on fear, but is not the primary cause of fear, and fear is the cause of armaments. Nations would arm, were there no solicitation whatever, until fear is removed."⁸

(2nd Day, p. 30.)

"It is said that solicitation by sellers of arms keeps the world in a state of permanent unrest. We do not presume to offer evidence on this head, for we have no first-hand knowledge, but we wish to make a comment. In Europe of to-day, where unrest is obvious, is the unrest the doing of Vickers or Krupp or Cresset or Skoda? Probably no one would say that their activities are the sole cause, and we find it difficult to believe that they are even a serious contributory cause. Surely the evils affecting Europe lie deeper than the activities of armament makers," however mischievous. But even if these are a contributory cause, it remains to be proved that nations if they were the only sellers would be less active in soliciting than are firms or companies."

(*ibid.*)

"Professor Guttridge: You think we would still have touting?" (*vis.*, under a system of National Boards).

"Major Hills: I think some countries would still solicit."

(2nd Day, p. 43, Q. 463.)

* The italics are not in the original.

"Mr. Spender: I suggest that it has been a chronic source of difficulty for a great many years past. For instance, as we all know, governments are very anxious that certain other governments should accept loans from them, and it is a very frequent condition that the loans shall be spent on armaments in the country of the lender." (2nd Day, p. 42, Q. 444.)

and again:

"Mr. Spender: I am not suggesting it is practised by the British Government: I only suggest, as a general statement, that if you look at the diplomatic records of Europe before the War, this was one of the great weapons, the offer to another country, even the persuasion of another country, to accept a loan on condition that it spent it on armaments in the lending country." (Ibid, Q. 445.)

The Royal Commission will have no difficulty, if it so desires, in obtaining confirmation of Mr. Spender's remarks, which is to be found in some of the continental compilations on the origins of the War.

An example of another method of "solicitation" by governments is contained in Colonel Daniel's summary from *British Documents on the origins of the War* (Vol. VIII, p. 589), where it is mentioned that in July, 1912, the German Emperor was reported to have urged the Russian minister of marine to place his shipbuilding orders in Germany, promising that six "Moltke's" could be supplied in a comparatively short time. (Annex V.)

143. The endeavour to secure orders by agents of private firms in foreign countries is unlikely, for reasons already given in paragraphs 114, 115 and 142, to have any appreciable influence on the sum of the world's armaments, or in the region of policy except possibly in minor states where armaments orders are relatively small. Under a system of government monopoly it may be expected that some, at any rate, of the arms manufacturing countries would have their agents in the non-manufacturing countries, who might be officials attached to their diplomatic legations. These agents would be in a much stronger position than the representatives of private firms, and, with the authority of their governments behind them, might operate in the sphere of policy. The position would thus be worse than before.

144. The evidence already given before the Royal Commission, supplemented as above, gives a fair answer on the question of solicitation, namely:—

- (i) that British firms are very little implicated;
- (ii) that, if the matter is put into perspective, the solicitation of armament firms is not a serious contributory cause of unrest among nations;
- (iii) that the cure rests with governments themselves; and
- (iv) that this particular alleged "evil" would not be eliminated and might be aggravated by government monopoly.

(ix) ARMAMENT RINGS AND TRUSTS.

145. The following can conveniently be dealt with together:—

Point 5.—"That armament firms have organised international armament rings through which the armament race has been accentuated through playing off one country against another."

Point 6.—"That armament firms have organised international armament trusts which have increased the price of armaments to Governments."

146. There is a curious inconsistency in some of the evidence on this point.

147. On the one hand, if firms manufacturing armaments are working independently, we hear of the evils of competition. All that class of "evil" represented in the terms "bribery," "corruption," "solicitation," "touting," etc., are, according to one theory, due largely to free competition.

148. On the other hand, when the firms tend to get together, which, one would expect, should eliminate these particular alleged evils, they are accused of forming "rings" and "trusts" (whether national or international), of "playing off one country against another," and of increasing "the price of armaments to governments."

149. The fact is that, in the eyes of many of their critics, firms manufacturing armaments can do nothing right, since nothing short of prohibition will satisfy these critics—though prohibition, as already shown, is not going to remove the evils they allege. It is nationalisation, not rationalisation, that they want.

150. It is not quite clear from the evidence whether the mere forming of "rings" and "trusts" by armaments manufacturers is itself considered an offence. It is admitted, however, by several witnesses that, in this regard, they are doing nothing which is not being done in other branches of trade and commerce. That, of course, is true. The primary object of rationalisation is, I assume, to eliminate various forms of waste, for example, by the scrapping of redundant machinery, by the reduction of overheads or by the elimination of unnecessary competition. It is difficult to see why it should be wrong for armament manufacturers to rationalise their businesses in order to attain these objects.

151. In considering rationalisation it must always be borne in mind that the firms manufacturing armaments are concerned also to a very large extent in other forms of manufacture. They cannot be expected to stand out of an almost universal movement. It is very natural, for example, that a large user (and perhaps also manufacturer) of steel, both for armaments and purely peaceful products, should be closely connected with the general steel industry; or that a chemical firm which also manufactures explosives (Imperial Chemical Industries, for example, which is admittedly "not primarily an armament firm"*) should rationalise itself for the sake of its paramount civilian side.

152. Whether rationalisation has proved an advantage to imperial defence is more doubtful. To the extent that it increases efficiency it is, of course, an advantage. But unfortunately, resulting, as it did, from a natural decrease in orders for armaments following the War 1914-18, it has led to a large diminution of capacity for output as compared with the days when there were many firms manufacturing general armaments. No doubt, however, the concentration was preferable to a continued competition for a very limited market in which all the manufacturing concerns would have collapsed.

(x) PROLONGING WAR, AND SUPPLYING BOTH SIDES. (BOLIVIA-PARAGUAY.)

153. One of the objections raised against private manufacture is that it prolongs wars. The Independent Labour Party, for example, claim that

"British armament firms have prolonged the war between Paraguay and Bolivia, despite the 'outlawing' of this war by the League of Nations, by supplying war material to both sides."[†] They support this statement with figures of exports of war material to Bolivia and Paraguay between January, 1932, and June, 1933.

154. The Independent Labour Party's allegations are dealt with in a Memorandum prepared in the Foreign Office, which is attached in Annex XIII, where it is shown that they are without foundation. In this general memorandum it is only necessary to quote the conclusion of the Foreign Office, which is as follows:—

"Conclusion."

It will be seen from the above that it is unfair to place any responsibility for the prolonging of the war between Bolivia and Paraguay upon British armament firms. Such arms as they exported to the belligerents were exported under licences obtained from His Majesty's Government. The latter, moreover, far from encouraging the export of arms, were the first to suggest an embargo and actually imposed it themselves without awaiting similar action by other governments. In no far as the war was 'outlawed' by the League of Nations, such action (in the form of approving the embargo) was taken some considerable time

* Statement of the Union of Democratic Control. (7th and 8th Days, p. 191; see also pp. 142 and 145.)
† 5th Day, Appendix, p. 156, paragraph 5 (b).

after His Majesty's Government had already imposed an embargo and when the supply of British arms to the belligerents had already ceased".

155. Lord Cecil also refers to the Bolivia-Paraguay war, citing it as an example of "armaments provided by some firms being used by both sides in a war", which he considers to be "a very repulsive condition produced by this particular industry".

156. The question of whether the supply of war material—or, for the matter of that, of other commodities essential to the carrying on of a war—to both sides is "repulsive" or not depends upon the point of view. A belligerent, and especially the fighting man, whose life depends upon his supplies of war material, would sooner have supplies from a country which was also supplying his enemy as well, than not at all. We ourselves, for example, would not have valued the indispensable fuses supplied in the Great War from Switzerland the less if we had known that war material was also being sent from that country to our enemy. To some people it would be even more "repulsive" to see a country overrun, its cities bombed and sacked, its civilian population exposed to all the horrors of invasion, than to supply it with the means to defend itself. That is the reverse side of what Lord Cecil calls "the emotional aspect".

157. But the real reply to Lord Cecil is to raise the question as to whether matters would be improved from his point of view by prohibition of private industry. The Council of the League, in considering how the evil effects of private manufacture are to be prevented, have the obligation under Article VIII of the Covenant to pay due regard "to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety". Both Bolivia and Paraguay fall within this category. If private manufacture had been abolished at some stage before this ancient dispute culminated in war some arrangement must have been made to meet their needs. In other words, these countries would have had to make some arrangements with arms producing countries for providing for their needs both in peace and war. They might easily have both made arrangements with the same government or governments. How great would have been the embarrassment of the government or governments concerned when war broke out when there was great uncertainty as to who was the "aggressor"—a point which, I think, has never been pronounced upon. Either they must have fulfilled their obligations to both countries—Lord Cecil's "repulsive condition"; or they must have fulfilled them in one case, but not in the other, which would have been very difficult in view of the doubt as to which country was the aggressor; or they would have disregarded their obligations to both, in which case the whole system would break down, since other non-producing nations would take the lesson to heart and start to make their own arrangements for armaments production.

158. It is submitted that the present system, under which private firms can supply non-producing nations, but under which the nations can concert an embargo at the Council of the League, if not perfect, is infinitely preferable to state monopoly.

(xi) ALLEGED INEFFICIENCY.

159. We come now to another inconsistency in the case against private manufacture. Up to now part of the charge against the industry has been that it is so powerful and effective as to have become a danger to peace, that by the various and dubious methods already discussed it first induces one nation to purchase the last word in armaments and thereby compels neighbouring countries to do the same in self defence. Speaking of the Bolivia-Paraguay war, a witness quotes the Report of the League of Nations Commission as follows:—

"The armies engaged are using up-to-date material; aeroplanes, armoured cars, flame projectors, quick-firing guns, machine-guns and automatic rifles; the automatic weapons are available in great quantities, but the other arms are few.

The arms and material of every kind are not manufactured locally, but are supplied to the belligerents by American and European countries."

The implication of that quotation is that the efficiency of private arms manufacture is rather too great for the peace of the world.

160. If it were true, as some witnesses claim, that state manufactures were both more efficient and more economical than private manufacturers, everyone would get better armaments and more of them for a given expenditure. On that hypothesis state monopoly would be a policy of "better and bigger armaments"! In fact, however, neither of the hypotheses on which the inconsistencies in the evidence are based is true. On the one hand private manufacture is not so powerful or so sinister as some of the witnesses would have us believe—as has been shown in the previous sections of this Second Memorandum of Evidence. On the other hand it is not so inefficient as other witnesses suggest.

161. On the technical case made out by some of the witnesses as to layout, machinery and so forth I am not competent by knowledge or experience to offer any evidence. I content myself, therefore, with a few general observations.

162. Firstly, if private manufacture were inefficient the Admiralty, War Office and Air Ministry would feel obliged to take the matter up, since, as shown in my First Memorandum of Evidence, they rely on it to a very large extent, both in peace and war.

163. Secondly, efficiency is for the purposes of this inquiry a comparative term. It would not be sufficient to establish that private industry was not at the highest attainable point of efficiency. In order to make good their case the critics would have to prove that the average efficiency of private establishments was markedly below that of corresponding government establishments—a very difficult comparison to draw. In the past, as the Royal Commission have already been reminded (11th Day) there have been numerous inquiries about government establishments, and, as a rule, the government has been urged by its critics to adopt the business-like methods of private firms, and to get rid of inefficiency which they seemed to think was inherent in a nationalised manufacture of arms.

164. Thirdly, the comparative efficiency of government and private manufacture would have to be estimated, not as it exists at a particular date, but on its average over a long term. Undoubtedly efficiency would be greater when orders were large than when they were small. Since the War, as mentioned in my First Memorandum of Evidence, orders for armaments both from our own government and from abroad have been relatively small and one would expect to find, both in government and private establishments, that not much money has been available for modernisation of plant, and that the amount of skilled labour has decreased.

165. Fourthly, it may be possible to make out a *prima facie* case to show that some armaments can be produced more cheaply in a government factory. But my impression is that this cannot be proved, since the costs alleged are not strictly comparable, and this is particularly true when the comparison is spread over the wide field of naval, military and air armaments.

166. Finally, in order to make the case, it would be necessary for the critics to prove that for purposes of war, including not only war expansion of industry, but also the difficult period following an outbreak of war, state industry over the whole range of naval, military and air armaments is more efficient than, and can replace private manufacture. These things cannot be proved.

167. Some of the evidence on this subject has been discounted by passages in my First Memorandum of Evidence as to the effort of private manufacture in the War. I should like to add, however, that I agree

in principle, though not necessarily in detail, with Dr. Addison, as to the need for centralised direction and co-ordination of armaments supply both in peace and war.

PART VI

SUMMARY.

THE HISTORICAL CASE.

(a) In Part II and in Annex II the historical basis of the attribution of "grave objections" and "evil effects" to private manufacture of arms and munitions is examined in detail. It is shown that, so far as available records go, neither before nor at the Paris Peace Conference was any real investigation of the subject carried out by any international or national authority. The idea of prohibiting private manufacture and trade was an American one, pressed by President Wilson, but apparently not unanimously supported by his own delegation. Though given some support by General Smuts in his paper of December, 1918, on the League of Nations, the idea had little support from the British delegation and was for the most part opposed by the British representatives. Eventually a strong case against prohibition was produced by the British defence departments (one of the signatories being Admiral Wemyss). As a result of this, the British delegates concerned proposed and carried the formula on the subject now incorporated in Article VIII of the Covenant as a compromise. (Paragraphs 9 to 11.) In a note at the end of paragraph 12 and in Annex III evidence is produced to refute the allegation that Admiral Wemyss's considered judgment favoured the suppression of private manufacture of arms and munitions of war.

(b) It is next shown that the allegation, made in the evidence against private manufacture that the Temporary Mixed Commission of the League of Nations took evidence and formulated "conclusions" against private manufacture, is without foundation. The matter is examined in considerable detail in Annex IV, where it is shown from the official records and from the testimony of participants:—

(i) That no outside evidence was taken by the Temporary Mixed Commission.

(ii) That the six points against private manufacture were neither "charges" nor "conclusions", but merely a catalogue of objections which had been urged against *uncontrolled* or *extramitted* private manufacture of arms, and that no endorsement to these was given. The six points against private industry were balanced by eight points against its prohibition, constituting sets of propositions *pro* and *con* which had been urged, but did not represent any finding of the Temporary Mixed Commission as to their validity. (Paragraphs 12 and 13.)

(c) A later questionnaire by the League of Nations resulted in Australia, the United Kingdom, Italy, Japan and Sweden stating that, to the best of their knowledge, there were no grave objections. Belgium, Bulgaria, Cuba, Egypt, Latvia, Norway and Poland considered that private manufacture was open to the objections previously enumerated, and South Africa raised other objections. (Paragraph 13.)

(d) The general conclusion of Part II is that, prior to the recent British and American inquiries, there has never been any real investigation of the alleged evils of private arms manufacture and that the industries concerned have never been given a hearing. The historical foundations, therefore, of the case against private manufacture of and trading in arms are of sand. (Paragraphs 14 and 15.)

GENERAL OBSERVATIONS ON THE EVIDENCE.

(e) The widespread propaganda against private arms manufacture and manufacturers is shown to have been conducted with a great deal of prejudice. The case against private industry and trade, as presented to the Royal Commission, is less unrestrained, but it is shown by extensive quotation that extravagant language is used to denounce and

prejudice private manufacture and manufacturers. Little attention has been paid by witnesses to the declarations of His Majesty's Government in a sense contrary to their own claims which are quoted in paragraph 20. The use of extravagant language against an industry that forms an essential part of our system of imperial defence is criticised as detrimental to the public interest, and the Royal Commission is asked, if the evidence is not found to justify violent language, to state its considered opinion in its report. (Paragraphs 17 to 24.)

(f) The evidence against private manufacture is also criticised as lacking perspective. The sinister part attributed to manufacturers of war material in world events is magnified unduly by being stated in isolation, whereas, in the aggregate of circumstances bearing on any particular situation it must (even if proved, which it is not) have been negligible. (Paragraph 25.) The evidence is also criticised for its vagueness, exaggeration, inaccuracy and insinuation, as well as for the poverty of illustration, notwithstanding the admission of one witness that the organisation he represents "has had the collaboration of a number of young and intelligent people who are concerned in the trade". (Paragraph 27.) In order to indict a great industry it would be necessary to prove a great number of charges, and this, I suggest, has not been done. (Paragraph 28.)

THE GENERAL CASE AGAINST PRIVATE MANUFACTURE AND TRADE.

(g) In Part IV the "general case" against private manufacture of and trading in arms is shown to rest partly on the alleged objections of public opinion, partly on the allegation that it tends to promote war, and partly on the suggestion that private manufacturers *would* use dubious means to increase their trade and profits. (Paragraphs 30 to 33.)

(h) So far as the alleged objections of public opinion are concerned it is pointed out that the argument comes strangely from organisations that have been engaged for years in an attempt to prejudice public opinion against private manufacture and that, among those best in a position to know the facts, the opponents of private manufacture have few if any adherents. Public opinion has been misled by the attribution of "grave objections" (without investigation) in the Covenant; by the misrepresentations about the alleged "conclusions" and "charges" of the Temporary Mixed Commission; and by a number of allegations of detail which are dealt with in Part V of this evidence. The hope is expressed that the Royal Commission will not allow its judgment to be biased by the argument of public opinion. (Paragraphs 34 to 37.)

(i) The argument that private manufacture tends to promote war is dealt with historically by references to the causes of the wars between 1815 and 1914, the origins of the Great War, and of more recent wars. It is shown that, whatever may have been the influence of armaments as a whole on the wars of these periods, it is difficult to find in the standard works and commentaries on these wars, official, whether British (including the massive compilation of Messrs. Gooch and Temperley on the origins of the War) or foreign, or unofficial, any suggestion that the existence of private manufacture of and trading in arms exercised serious influence. Some of the other influences on the origin of the wars of this period are referred to and it is suggested that, viewed in the perspective of the whole complex of "origins" the existence of private manufacture was a negligible factor. Modern history, therefore, does not support the statements in the evidence that private manufacture is either

"a predisposing cause of war", "an obstacle to efforts for peace", an influence "imperilling the peace of public opinion", "the constant inflaming of public opinion", "a menace to the peace of the world" or encouraging "conditions endangering peace." Moreover to-day there are new disturbing factors, such as internal upheavals in many countries, economic depression, new systems of government, weakening of treaty obligations, propagandist use of broadcasting, growth of militarism, large scale re-armament, and above all the air menace, which tend to sink into even greater insignificance any influence on questions of peace and war which might (if it had been proved) have been attributable to private manufacture of and trading in arms. The abolition of private manufacture would not touch the real causes of international unrest. (Paragraphs 38 to 54.)

THE CASE IN DETAIL.

(i) In Part V the case against private manufacture of and trading in arms is examined in detail. The evidence is marshalled as far as possible under the six heads adopted in the Report of the Temporary Mixed Commission, but points outside of these as well as all the principal illustrations of the "charges" are examined. The general result is to show that the "charges" are not made good; that many of the detailed charges are not preferred against British manufacturers and in no case up to now are they proved against them; that the illustrations are usually inaccurate and do not support the "charges"; that the surrounding circumstances by which events were really governed are usually ignored; that the alleged "evils", where they may exist in particular countries, apply to trade generally and are by no means confined to purchase of arms; that these "evils", if they did exist, would not be removed by the prohibition of private manufacture and trade. (Paragraphs 55 to 167.)

(k) The alleged incompatibility of public duty and private interest involved in the oft-repeated suggestion that manufacturers of arms must deplore and try to prevent reduction of armaments and must resort to dubious methods to increase their trade and profits is strongly challenged as subversive to the general assumption of a fairly high standard of private morality on which civilized society rests. The charges against manufacturers of armaments are no more justifiable than corresponding charges would be, for example, against doctors, nurses, undertakers, or many branches of trade or business where commodities or professions if abused are deleterious to the public weal. The insinuations in the evidence against prominent persons holding shares in companies which, *inter alia*, manufacture armaments are criticised. (Paragraphs 56 to 66.)

(l) In reply to the objections urged against making "profit out of war", it is pointed out that the phrase has a different ring if for the word "war" one substituted "protection", "means of defence" or "deterrent to aggression", which are more appropriate terms, especially when applied to private manufacture in this country with its strong instincts for peace and collective security. The Royal Commission are reminded also that many branches of manufacture, trade and transport make as good profits out of war as private manufacturers of arms. We cannot nationalise them all. The proper procedure for preventing excessive profits, whether from the supply of war material or other commodities or services rendered, is to have resort to such expedients as income tax, super tax, excess profits duty and the methods adopted by the Ministry of Munitions in the Great War. (Paragraphs 67 to 72.)

(n) The accusations against private manufacture and trade of fomenting war scares and disseminating false reports are dealt with together. The Mulliner case, the one pre-War example quoted against British industry, is dealt with at length (paragraphs 77 to 87, and Annex VI prepared in the Admiralty). It is shown that Mr. Mulliner, in bringing information to the government, was performing the

elementary duties of a British citizen; that his information was true and that in giving the information he was not disseminating false information or fomenting a war scare; that the Admiralty built the additional Dreadnoughts on the basis of information obtained elsewhere; that events proved that these additional ships were necessary to our security; that Mr. Mulliner's public activities in the election campaign of 1909-10 took place after he had ceased his connection with the Coventry Ordnance Works and had become a member of the general public; that the controversy on the four Dreadnoughts was one of internal politics in which statements of all political parties took a part and in which the public was deeply concerned ("We want eight and we won't wait"); and that the Mulliner episode is not even mentioned in some of the most authoritative accounts of our naval policy at that time, one of which is quoted in Annex VII. A more detailed summary of the Mulliner case is given in paragraph 87. In post-War times practically no evidence against British manufacture has been offered under this head, with the exception of a newspaper interview by Mr. Fairey—but the influence of that is shown to have been negligible compared with the factors influencing our defensive policy. Given the paucity of illustration, comment is made on the absurdity of statements in the evidence that armament firms have been "active" in fomenting war scares or that there has been "constant" inflaming of public opinion.

Finally under this head, a list is given of other influences operating to foment war scares, compared with which any influence that private manufacture could exert is negligible. (Paragraphs 93 to 96.)

(e) The allegation of interference by manufacturers of armaments in international conferences is next examined. No charge is made against British firms under this head. The one example—the case of Mr. Shearer—is dealt with in Annex VIII, prepared in the Admiralty, where it is shown that the differences between the countries principally concerned were too great at that time to enable agreement to be reached. "One swallow does not make a summer" and some of my personal experiences are drawn on to show that the "Shearer" episode was unexceptional. The proceedings at international conferences of some influences other than private manufacture are shown to be liable at times to contribute to "the kind of atmosphere that brings about the failure of international negotiations"—the very charge they bring against private manufacture. (Paragraphs 98 to 101.)

(o) In dealing with allegations of bribery and corruption an account is given of the British system for deciding and placing armaments programmes in order to show how difficult it would be to resort to bribery and corruption. As regards bribery abroad in the case of a Japanese admiral (1910-12), it is shown from the judgment (quoted in Annex X) that sentence was pronounced not against any British subject, but against members of a great Japanese firm who were the agents in Japan of a British firm who received the contract. The bribe was not given to increase the amount of an order, but to enable one firm to secure the order from a rival. It is pointed out that bribery and corruption in matters relating to armaments would not be removed by making armaments manufacture a government monopoly, since governments would have strong motives for obtaining orders for their armaments industries such as increasing the dependence of other nations upon them, and increasing their own "war potential," and preventing an increase of the "war potential" of their rivals. The cruder forms of bribery (e.g. of a foreign press) by some governments are unfortunately not a thing of the past. In addition governments have at their disposal methods of persuasion of a more potent kind, including political inducement. Examples are given of their use (see also Annex XI). Bribery and corruption in connection with armaments contracts can only occur when the standard of commercial morality enables such things to happen, not only in relation

to armaments but to all commercial contracts. The eradication of such abuses depends not on prohibiting private manufacture of and trading in arms (which would effect less than nothing) but upon the pressure of healthy public opinion in the country concerned. (Paragraphs 102 to 129.)

(p) The objections to the employment of ex-officers and officials in armament firms are left, in the main, to other official witnesses to deal with, but an extract from a recent government report is quoted (Annex XII) to show the standards of the British public service. It is shown also that advantage to imperial defence results from this practice. (Paragraphs 130 and 131.)

(q) The accusation of influencing the press has not been made good against British firms manufacturing armaments notwithstanding the provocation which they have received from the press attacks of their opponents. The evidence against firms abroad is vague and inconclusive. The extent to which manufacturers of war material could influence the press is contrasted with other influences, often of a subversive kind, which have included that of governments. The prohibition of private manufacture of and trading in arms and munitions of war and the substitution of a system of government monopoly would not check this alleged evil. (Paragraphs 132 to 137. A more detailed summary is given in paragraph 138.)

(r) The allegation of "solicitation" by private manufacture is only commented on briefly, as it has already been effectively dealt with by other evidence which is quoted. The "evil" would not be removed by government monopoly, but would rather be aggravated, since governments (who would have strong inducements to secure orders for their own factories and to divert them from their dangerous neighbours) could also "solicit" and would have at their disposal means of persuasion such as government loans and political considerations, which private industry cannot possess. (Paragraphs 139 to 144.)

(s) In dealing with the allegation that armament firms have formed rings and trusts through which they play off one nation against another and increase the price of armaments to governments, attention is called to an inconsistency in the evidence. When the firms are free, complaint is made against the evils of competition! When they are rationalised they are accused of playing off one government against another and of rigging prices! The so-called rings and trusts are shown to be no more than the process of rationalisation which, often with the active encouragement of governments, is going on throughout industry, commerce and transport the world over. The argument that what may be right for other trades and industries is wrong for armaments, owing to the special conditions of this business, is questioned. (Paragraphs 145 to 152.)

(t) The allegation that British firms prolonged the war between Bolivia and Paraguay by supplying war material to both belligerents is dealt with in Annex XIII, prepared in the Foreign Office, where it is shown that it is unfair to place any responsibility upon British firms. Such armaments as they exported were under government licence and His Majesty's Government, far from encouraging the export of arms, were the first to suggest an embargo and imposed it themselves in advance of other nations. The war was not "outlawed" by the League of Nations until after the supply of British war material to the belligerents had ceased. As regards the supply of war material by private manufacture to both belligerents, it is pointed out, by reference to our own experience in the Great War, that it is preferable for a belligerent to obtain arms under this condition than, owing to inability to obtain arms at all, to expose the civilian population to the horrors of armed occupation. Finally it is shown that under Article VIII of the Covenant, the non-arms-producing nations are entitled to receive supplies. If private industry was replaced by government monopoly, arms-producing governments would be bound to supply them to their great embarrassment in time of war. This alleged "evil" therefore would not be eliminated by prohibiting private manufacture of and trading in arms and munitions of war. (Paragraphs 153 to 158.)

(u) In connection with the allegation that British armament firms are inefficient, another inconsistency in the evidence is pointed out. The implication of most of the evidence against private manufacture of arms is that its efficiency is too great for the peace of the world. Other witnesses, however, claim that it is not efficient enough and that it can only be rendered efficient by nationalisation. If that were true, nationalisation would mean an intensification of efficiency of arms production throughout the world. In fact, however, private manufacture is neither so powerful nor so sinister as one set of witnesses suggest, nor so inefficient as other witnesses would have us believe. If it were inefficient the defence departments would have to take the matter up. No evidence is offered on the highly technical allegations of inefficiency against private firms manufacturing armaments made by some witnesses. But in some general observations it is pointed out that efficiency is a comparative term; that the critics, in order to establish their case, would have to prove that the average of private industry is markedly below that of government manufacture. The Royal Commission are reminded, however, that in the past there have been numerous inquiries into government establishments and that the usual criticism of government departments has been that they ought to adopt the business-like methods of private firms! A further point that would have to be proved in order to establish the case of the critics is that private manufacture has been inferior to government manufacture over a long term of years. When orders have been small, as in recent years, not much money is available for new plant, whether in private or state establishments and skilled labour is apt to become dispersed. Comparisons of this kind would be very difficult to make, especially over the wide field of industry involved in the armaments of the three defence services. Finally it would have to be proved that in time of war, including both war expansion over the whole field of armaments and the difficult early days of war, state industry is more efficient than private manufacture. This cannot be proved. (Paragraphs 159-167.)

GENERAL CONCLUSION.

The general result of this examination is to show that the allegations of "grave objections" against private manufacture of and trading in arms and munitions of war have been greatly exaggerated. Notwithstanding the zealous enthusiasm of the opponents of this business, notwithstanding the prodigious effort they have made to scrape up every scrap of evidence against this industry, they have not succeeded in making good either their general case or even one single item of their detailed case. Where the various items in the case are not disproved, they are controversial. The original condemnation of the industry by the Peace Conference has been shown to have been made without investigation, and until the inquiries in this country and America, no such investigation has taken place. The claim in the evidence given before the Royal Commission that private manufacture of arms and munitions is a "predisposing cause of war," "an obstacle to efforts for peace," "imperilling the peace of nations," involving "the constant inflaming of public opinion," "a menace to the peace of the world," encouraging "conditions endangering peace," and so forth, have been shown to be invalid. Compared with the vast complex of other influences and with the imponderable course of events with which the peace-loving nations have to contend, any sinister influence that private manufacture of arms could exert is, and always has been, negligible. The unworthy accusation that the industry should be mischievous in order to make profits is shown to have no justification. The evidence has failed to establish a case against the industry of fomenting war scares, disseminating false information, interfering with international conferences (except in a single case), bribing and corrupting except in countries where the standard of commercial morality permitted such things. The evidence that the industry has influenced the press in a sense adverse to peace is very weak, and such influence is shown to be insignificant compared with that of other adverse

influences on the press, including sometimes that of governments. Much the same applies to the accusations of soliciting and toasting. The rings and trusts are shown to be merely rationalisation and the allegations of harmful results have been greatly exaggerated.

Notable points are that under most of the heads no case has been made out against British firms that manufacture armaments as part of their business; and that the alleged "evils" would not be eliminated by prohibition of private manufacture

of arms and munitions of war and the setting up of a government monopoly. The allegations of inefficiency of private manufacture as compared with state establishments have not been proved.

I venture to submit, therefore, to the Royal Commission that the case has not been made out sufficiently to justify the prohibition, whether nationally or internationally, or any drastic reorganisation of an industry which, as shown in my First Memorandum of Evidence, is essential to imperial defence.

ANNEX I

THE POPE AND ARMS TRAFFIC. IN CRUSADING TIMES.*

The Third Lateran Council, meeting in 1179, uttered a Canon forbidding merchants of all Christian powers to sell to the Saracens arms, iron or wood for naval construction, or to furnish them with pilots, under penalty of excommunication, deprivation of property and becoming serfs to anyone who could capture them. A translation of this Canon† is attached as an Appendix to this note.

On assuming the Papal Tiara in 1198 the Pope, Innocent III, seems to have gone further than his predecessor, for he is stated to have forbidden all trade with Moslems. Venice protested, "on the ground that it would ruin her commerce. Innocent III then limited his ban to materials of war—iron, oakum, pitch, rope, weapons and ships—practically the Third Lateran Council's ban. †

In the early years of the XIIIth century Innocent III succeeded in launching the Fourth Crusade, but by the wiles of the Venetians it was diverted from its true objective (the Holy Land) to Zara and Constantinople. This brought down on the Venetians the thunders of the Pontiff. Nevertheless, while the Crusaders were setting up the Latin Empire at Constantinople there was a local truce with the Saracens, and the Venetians took advantage of this to enter into a number of trade agreements with the Mussulmen, with whom they secured a privileged position.

Towards the end of the XIIIth century the Ottoman Turks appeared upon the scene. The Christians were driven from the coast of the Levant. In 1289 Tripoli, and in 1291 Acre, were captured by the Ottomans and the last remnants of the Latin dominion in Palestine, upon which the Venetian tenure of trading rights in the Syrian ports depended, were swept away.

"Her whole Levant trade was threatened by the Turk. She took a course dictated by her commercial interest, and instead of fighting the Mussulman she began trade with him. She obtained confirmation of her ancient rights from the new rulers of the Levant cities. To the scandal of Christendom a Mussulman Sultan declared it to be 'his firm resolve that the Venetians shall be protected, sheltered, honoured above all other peoples in the world.' The Venetians reopened their factories in the Levant and obtained the right to an escort if they wished to visit the Holy Sepulchre. We find them trading in 'goods forbidden to Christians'; that is, in slaves,

* Based in the main on M. Luchaire's *Innocent III*, supplemented by Lamb's *The Crusades*, Chapter 30, and Horatio Brown's *History of Venice*.

† I am indebted to Sir George Hill, the keeper of manuscripts at the British Museum, for this Canon. A copy of the original in Latin has been lodged with the Secretary.

shipbuilding timber, weapons—the sale of which to the Infidel was expressly forbidden by Papal Bulls."†

The sequel was a war, not between the Christians and the Turks, but between two Christian nations, the Venetians and Genoaese. For the Genoaese

"were strong in Constantinople, and they countered to the Venetian treaties with the Infidel by resolving to close the Dardanelles and to exclude Venice from trade in Constantinople and the Black Sea. This step was regarded by Venice as a *casus belli*, and the second great war began."†

The war lasted until 1299 and was followed by a succession of wars between Venice and Genoa which only ended with the surrender of the Genoaese fleet at Chioggia in June, 1380.

APPENDIX TO ANNEX I.

Translation from the Latin.

A NEW AND FULL COLLECTION OF THE HOLY COUNCILS.

Edited by J. D. Mansi, Volume 22, 1778, p. 239.

A.D.1179 (Lateran Council III).

"XXIV, CHRISTIANS ARE FORBIDDEN TO SERVE THE SARACENS.

There are certain persons whose minds are so filled by cruel greed that while they glory in the name of Christians they yet furnish to the Saracens arms, iron and timber for their galleys, and rival or even surpass them in evilness, in that they supply them with arms and the means to attack Christians. There are some too who, led on by greed, discharge the office and function of navigation in the galleys and pirate vessels of the Saracens. We resolve, therefore, that these, being cut off from the communion of the Church and being exposed to excommunication for their wickedness, be punished by the loss of their goods, at the hands of the catholic civil powers and magistrates of States, and if they be taken captive shall be slaves to their captors. We enjoin also that frequent and solemn excommunication be pronounced against them throughout the churches of the maritime cities. Those also are liable to the penalty of excommunication who dare to make captive or despoil of their goods Romans or other Christians travelling by ship in the discharge of their business or for other just reasons. Let those also who, through damnable greed dare to despoil of their goods Christians that have met with shipwreck, to whom, according to the rules of their faith, they are bound to be of assistance—let these know, unless they shall have restored that which they have taken away, that they lie under sentence of excommunication."

* Horatio Brown. *History of Venice*, page 57.

† *Ibid*.

ANNEX II

THE ORIGIN OF ARTICLE VIII, PARAGRAPH 5, OF THE COVENANT OF THE LEAGUE OF NATIONS.

MEMORANDUM BY SIR MAURICE HANKEY.

I.—PREFACE AND SUMMARY.

In connection with my evidence before the Royal Commission on the Private Manufacture of and Trading in Arms, I have thought it worth while to explore the origin of the passage in Article VIII,

paragraph 5, of the Covenant, which reads as follows:—

"The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety."

5 M

2. My object has been to try and discover, firstly, who originated the idea of dealing in the Peace Treaty with the private manufacture of and trading in arms and implements of war, and, secondly, the evidence on which was based the assertion that "the manufacture by private enterprise of munitions and implements of war is open to grave objections".

3. The source of information on which I have mainly relied in this study of the question is a book by Mr. David Hunter Miller, entitled *The Drafting of the Covenant*. Mr. Hunter Miller, legal adviser to the American Delegation at the Paris Peace Conference, whom I had the pleasure of meeting in Paris, played an important part in the making of the Covenant, and worked in close touch with all those principally concerned in the task. His book contains not only the successive drafts of the Covenant, but the official minutes of the various bodies by which it was considered—the League of Nations Commission, the Drafting Committee and the Plenary Meetings of the Peace Conference, in addition to personal notes and memoranda of less formal meetings at which much of the work outside the Conference was carried out.

4. In addition, I have examined the minutes and memoranda of the British War Cabinet, the Imperial War Cabinet, the British Empire Delegation at the Paris Peace Conference, the Council of Ten and the Council of Four—without unearthing much additional information except of a negative character.

5. I am also indebted for invaluable assistance to Sir Cecil Hurst, now a Judge of the Permanent Court of International Justice at The Hague, who worked very closely with Mr. Hunter Miller, and to the Secretary to the Admiralty, who has been able to fill in an important gap in the other available accounts of this episode (paragraphs 37 to 45).

6. The results of this study are incorporated in the present memorandum.

7. It will be seen that the idea of dealing with private manufacture of and trading in arms in the Covenant was American in origin, having been proposed by Colonel House as early as July, 1918, and taken up at once by President Wilson, who incorporated provisions substantially identical with Colonel House's in his first draft of the Covenant. Colonel House's original idea was to prohibit private manufacture altogether, and President Wilson held to this as long as he could. Neither the French nor the Italian drafts of the Covenant mentioned the subject. Although the Phillimore Committee had its attention drawn to the subject,* the first British draft, attached to the Committee's Report of March, 1918 (the first draft of a covenant), did not refer to it. The first mention of private manufacture from the British side is contained in General Smuts' plan for a League of Nations, where prohibition of private manufacture is contemplated—though considered of far less importance than abolition of conscription. General Smuts' memorandum, however, is interesting as being the only document in the whole series to give reasons for the proposal. The reasons are quoted verbatim below in paragraph 17.

8. Lord Robert Cecil's plan of January 14, 1919, did not mention disarmament or private manufacture.

9. The aim of the British delegation seemed at first to have been to drop any reference to the subject, but owing to President Wilson's persistence, this proved impracticable and their influence seems then generally to have been directed towards some less drastic treatment than prohibition of private manufacture, and eventually they were successful in securing this. Although on one occasion (on February 22—see para. 36) Lord Robert Cecil is reported by Mr. Hunter Miller as prompting President Wilson to re-introduce a clause to prohibit private manufacture, he received next day

(February 7th) a memorandum from the three defence departments which seems to have led him to modify his views, and he eventually succeeded in securing the adoption of a more moderate version on lines proposed by the Admiralty.

10. In all the consideration given to the Covenant there is no record of any investigation or decision on the subject of private manufacture by either the War Cabinet, the Imperial War Cabinet or the British Empire delegation. The only departmental memorandum on the subject is one by the Admiralty (approved also by the War Office and Air Ministry) prepared on the draft of the Covenant as it stood after its first reading by the League of Nations Commission in Paris and still containing the American article providing for prohibition of private manufacture. This memorandum and its annex, which are quoted below in paragraphs 39 and 40, are interesting as anticipating some of the reasons given in my First Memorandum of Evidence against the prohibition of private manufacture of and trading in arms.

11. It is curious that, at a time when the Allied and Associated Powers had just emerged from a war in which they owed so much to private manufacture of arms and munitions of war, they should have given so little study to the fundamentals of the question before committing themselves to the passage in Article VIII of the Covenant quoted in paragraph 1. This was probably due to the circumstances of the day. The War was barely over. For months there were apprehensions that it might break out again. The responsible naval and military authorities still had immense preoccupations. The problems presented to the Peace Conference were of great variety and immense complexity. Everyone in a responsible position was overwhelmed with work. The League of Nations Commission worked with great rapidity and, as I myself well recall, it was almost impossible to keep in touch with day-to-day developments. In these circumstances it seems possible that the paragraph in question—one paragraph of one article of one (although an important one) of the vast inter-connected complex of subjects dealt with by the Peace Conference—received rather less consideration from an historical and technical point of view than it deserved.

II.—BEFORE THE PARIS PEACE CONFERENCE.

12. Chronologically the first draft of the Covenant of the League of Nations was the one attached to the report of Lord Phillimore's Committee, dated 20th March, 1918. Neither the report nor the draft contains any reference to the private manufacture of arms and munitions of war.

13. The French draft, dated 8th June, 1918, also makes no reference to the subject.

14. The next draft was one prepared in America by Colonel House, dated 16th July, 1918, which contains at the end of Article 21 the following passage:—

"The Contracting Powers agree that munitions and implements of war shall not be manufactured by private enterprise and that publicity as to all national armaments and programmes is essential."

That was, so far as I have been able to ascertain, the first reference to the subject. I have failed to discover in the *Intimate Papers of Colonel House* the grounds on which he based this proposal.

15. President Wilson's first draft of the Covenant (undated, but produced within a few weeks of Colonel House's draft), in which, according to Colonel House,* all but five of the twenty-three Articles of his draft were utilised, adopted the principle of Colonel House's Article 21 in the following terms:—

"The Contracting Powers further agree that munitions and implements of war shall not be manufactured by private enterprise or for private profit, and that there shall be full and frank publicity as to all national armaments and military or naval programmes."†

* *The Intimate Papers of Colonel House*. Vol. IV, pp. 127-8.

* Although the subject was not included in the Phillimore Committee's draft of the Covenant it was not ignored by that Committee. In a summary of views expressed by various organisations, attached as an Appendix to the Committee's Report, mention is made of a proposal by the Union of Democratic Control for nationalisation of manufacture of armaments. There is also a reference to a Swedish book, in which state monopoly is opposed.

† *The Drafting of the Covenant*. David Hunter Miller, Vol. II, Document 3.

It will be noticed that President Wilson had introduced the idea of prohibiting "private profit" in the manufacture of arms.

16. The above extracts show that the idea of embodying in the Covenant prohibition of private manufacture of arms was an American one, propounded by Colonel House and taken up by President Wilson.

17. The first reference to the subject in any British draft is contained in General Smuts' plan of 16th December, 1918. For the first time a reasoned statement is given, though without any evidence, for the proposed nationalisation of armaments manufacture in the following passages of the covering memorandum:—

"The nationalisation of armament factories has been advocated, on the ground that as long as the production of munitions of war remains a private commercial undertaking, huge vested interests grow up around it which influence public opinion through the press and otherwise in the direction of war. There is no doubt that the influence of Krupp has been harmful to the great peace interests of the world, and, in a less degree, the same could probably be said of most other similar undertakings. The very success of that sort of business depends on the stimulation of the war atmosphere among the peoples. The press, influenced by the large profits and advertising enterprise of the armament firms, whip up public opinion on every imaginable occasion; small foreign incidents are written up and magnified into grave international situations affecting the pacific relations of states and the war temperature is artificially raised and kept up.

The proposal is, in my opinion, a sound one, and should be adopted by the conference or the League. Of course, difficulties have been urged against it. Where are the small states, who are dependant for supplies on the private munition factories in the countries of the Great Powers, going to get their armaments in future? I am not much impressed with this sort of argument. To keep up the high temperature of the war atmosphere over the world for the sake of indulging the small Balkan and other states in their special form of sport will not appeal to the great democracies of the world. It will materially assist the peace policy of the League to cut off the supply of arms and munitions from these small states, whose little fits of temper are too costly to the world, and whose security could be more safely entrusted to the League.

In order to enable the council of the League to keep in touch with the production and movements of arms and munitions, the council should have full rights of inspection of all such national factories, and should, besides, be furnished periodically with returns of the imports and exports of arms and munitions into and from the territories of the members of the League.

It must be borne in mind that, even with this information before it, the council will not be in possession of the full facts. The important question remains, how soon other private factories engaged in other industries could be converted to the production of munitions, and to what extent the official or state production could thus be increased? I am afraid that unless inquisitorial powers are given to the League, it could not follow up this important aspect of the matter. In all its calculations, however, the council will have to bear in mind that there is this vast reserve capacity of production in the background, a capacity which will be specially great for the next decade because of the great number of munition factories which will now be converted to other uses, and could, in case of necessity, be reconverted to the production of munitions.¹⁹

18. The text of the Article proposed by General Smuts was as follows:—

"(17) That all factories for the manufacture of direct weapons of war shall be nationalised and their production shall be subject to the inspection

of the officers of the council; and that the council shall be furnished periodically with returns of imports and exports of munitions of war into or from the territories of its members, and as far as possible into or from other countries."

19. It is worth noticing that, of the three proposals for disarmament included in his memorandum, (viz., the abolition of conscription and conscript armies; the limitation of armaments; and the nationalisation of munitions production), General Smuts comments that "the abolition of conscription is by far the most important, and it is also the one behind which there will be the greatest volume of public opinion. The latter statement was true of the United Kingdom, but not of the continent of Europe.

20. Lord Robert Cecil's draft, produced on 17th December, 1918 (one day later than General Smuts' draft), with a second edition dated 14th January, 1919, contained no reference to private manufacture of arms and munitions of war.

21. It should be noted that, although General Smuts' and Lord Robert Cecil's drafts were both circulated to and discussed at the Imperial War Cabinet, neither of them was adopted officially by the government. The passage relating to private manufacture in General Smuts' draft received little attention in official discussion.

22. On 10th January, 1919, President Wilson produced a second edition of his draft of the Covenant (known as his First Paris draft), which still included in Article IV the prohibition of private manufacture. Sir Cecil Hurst tells me that the members of the American delegation were not at all satisfied with this provision. Mr. Hunter Miller, to whom the draft was referred for remarks, urged its omission in the following passage:—

"Fourth Paragraph:

This paragraph in its first sentence prohibits private manufacture of 'munitions and implements of war.' These words would probably not include armor-plate, for example, but the language used would certainly include the manufacture of a gun for the United States by the Steel Trust, even at cost.

The United States has no power to prohibit the manufacture of articles within a state. Congress could practically exercise the power, in this regard, by the construction of Government plants, followed by the prohibition of the export of such articles as mentioned; but it is not understood that export shipments are to be prohibited in time of peace, as one Government might sell and ship to another.

The evils of such concerns as Krupp, for example, are admitted; but the desirability of practically compelling such Powers as China to build national munition plants may be doubted.

The present omission of the clause, in view of the study directed to be made of the whole subject, is suggested.²⁰

23. In spite of Mr. Hunter Miller's suggestion for "the present omission of the clause," the passage was retained in President Wilson's third draft, dated 20th January, 1919.

24. On 20th January, also, was produced a British draft convention, which was an elaboration of Lord Robert Cecil's earlier draft. It did not include any provision for the abolition of private manufacture, but dealt with the subject distantly (in Chapter I) in the following terms:—

"They" (the High Contracting Parties) "entrust to the League the general supervision of the trade in arms and ammunition with the countries in which the control of this traffic is necessary in the common interest."

25. Shortly after this an attempt was made by Lord Enscombe Percy to amalgamate the British and American drafts. Mr. Hunter Miller's version of this amalgamation includes, in a preamble, the passage just quoted from the British draft convention of 20th January, as well as in Article V a passage providing, *inter alia*, for—"the prohibition

* *The Drafting of the Covenant.* David Hunter Miller, Vol. II, Document 7. The last sentence contains the implication that sufficient study of the question had not been made.

* *The Drafting of the Covenant.* David Hunter Miller, Vol. II, Document 5.

of the manufacture of munitions and implements of war by private enterprise or for private profit." Mr. Hunter Miller records in his book, however, the following comment by Lord Eustace Percy:—

"In view of the new sub-section (V) which has now been embodied in the Preamble, and in view of the fact that it is proposed to appoint a separate Commission of the Peace Conference to study the disarmament question, it might perhaps be preferable to omit this Article altogether."

26. The efforts begun by Lord Eustace Percy to amalgamate the British and American drafts were continued by Sir Cecil Hurst, Lord Robert Cecil, Mr. Hunter Miller, Colonel House and President Wilson. And, as usually happened, when the British representatives intervened the provisions for restricting private manufacture were relaxed.

27. Thus in the Cecil-Miller* draft of 27th January, 1919, all reference to private manufacture was dropped out of Article IV, which still contained most of the other disarmament provisions, such as abolition of conscription, disarmament and publicity of armaments.

28. On 31st January, Mr. Lansing, the United States Secretary of State, produced a draft of a resolution to be passed by the Paris Peace Conference, which included, *inter alia*, the following reference to the sale of arms and munitions:—

"That the League of Nations should be charged with the consideration and formulation of a plan for a general reduction of national armaments on land and sea and in the air, including therein restrictions upon compulsory military service and upon the sale of arms and munitions of war."

This, of course, was much weaker than the proposal sponsored by President Wilson, and more in accord with British ideas. But President Wilson did not take up his colleague's proposal.

29. The draft of the Covenant on which the League of Nations Committee worked is one known as the Hurst-Miller draft, which, like the Cecil-Miller draft, owed its origin to the desire of the British and American Delegations at Paris, whose ideas on a League of Nations differed but little in substance, to put forward some common draft instead of separate documents embodying the individual views of the two delegations. The preparation of the Hurst-Miller draft entailed the re-writing of most of the plans that had been prepared up to that date. Presumably its authors were actuated by the idea that it would be well to limit the draft to what was likely to secure acceptance.

30. Article 8, the disarmament Article, is stated by Mr. Hunter Miller to have been written by Sir Cecil Hurst.† It contained no provision as to the private manufacture of armaments. Mr. Hunter Miller's acceptance of the Article in this form was perhaps due to the fact that he was himself opposed to the inclusion of the provision as to private manufacture.

31. President Wilson had agreed with Lord Robert Cecil that the legal advisers of the two delegations should prepare a joint text as the basis of discussion by the League of Nations Commission. At the last moment, however, after reading the Hurst-Miller draft, he produced a modified version of his own text (his fourth draft covenant) in which he included the passage from his earlier draft providing for the prohibition of private manufacture (see paragraph 15 above), which had been omitted from the Hurst-Miller draft. The President intended the League of Nations Commission to work on his new draft, but, to quote Mr. Hunter Miller:—

"Wilson's hope was not realised; it was the Hurst-Miller draft and not his revised Covenant which became the basis of the work to come."[‡]

Thus the draft on which the League of Nations Commission of the Paris Peace Conference set to work contained no reference to the private manufacture of arms and munitions of war.

* *The Drafting of the Covenant*. David Hunter Miller. Vol. II, pp. 134-5.

† *Ibid.* Vol. I, p. 69.

‡ *Ibid.* Vol. I, p. 73.

III.—AT THE PARIS PEACE CONFERENCE.

32. We shall now see that at the Paris Peace Conference President Wilson made a further effort to introduce a provision prohibiting private manufacture, but that eventually on the initiative of the Admiralty a compromise was reached, as in Article VIII, paragraph 5, of the existing Covenant.

33. At the outset of the Conference a special Commission was set up to consider the League of Nations. The Commission met for the first time on 3rd February, under the presidency of President Wilson, and thereafter almost every day until 13th February, when its work was sufficiently advanced for the presentation of a draft covenant to the Conference in Plenary Session on 14th February. Lord Robert Cecil and General Smuts were the British Empire representatives. No stenographic notes were taken, and the English and French texts of the longhand notes are not always identical.

34. Three drafts of the Covenant were presented to the Commission, viz., the British-American (Hurst-Miller) draft, on which the Commission worked; a French draft; and an Italian draft. None of these drafts contained a specific reference to the private manufacture of arms and implements of war.

35. At the fourth meeting of the Commission on 6th February, however, President Wilson reintroduced his original proposal for the prohibition of private manufacture by moving that the last paragraph of Article VIII, which had read as follows:—

"The High Contracting Parties further agree that there shall be full and frank publicity as to all national armaments and military or naval programmes"

should be amended to read:—

"The High Contracting Parties further agree that munitions and implements of war should not be manufactured by private enterprise, and direct the Executive Council to advise how this practice can be dispensed with; and further agree that there shall be full and frank publicity as to all national armaments and military or naval programmes"

36. The amendment was adopted. The official minutes record no discussion, but Mr. Hunter Miller states that:—

"What happened was this: Cecil wrote out and handed to Wilson a draft reading as follows:—

"The H.C.P. further agree that munitions and implements of war should not be manufactured by private enterprise and direct the Executive Council to consider how this practice can be dispensed with and further agree . . ."

Wilson changed 'consider' to 'advise', as the original draft, which is still in my files, shows, and then read the proposal which was accepted".*

Sir Cecil Hurst's account is as follows:—

"There does not seem to have been any prolonged discussion as to the Wilson amendment. The President seems to have addressed the Commission as to the Article generally, and then as to private munition making, and to have stated that he objected to the latter. His proposal was accepted."

37. On the following day, 7th February, a memorandum with appendices stating the objections to the new Article was presented to Lord Robert Cecil, signed by:—

F. H. Sykes, Major-General (Air Ministry).

W. Thwaites, Major-General (War Office).

R. Wemyss, Admiral (Admiralty).

This memorandum is published in *The Drafting of the Covenant* (Vol. I, p. 296), but without mention of the signatories or the date. President Wilson's proposal to prohibit private manufacture was dealt with in the following passage:—

"4. While fully appreciating the force of the desire, on the grounds of public policy, that private enterprise in armament production should cease, it is observed that the effects of this proposal would operate to the advantage of an aggressive Power, and would seriously compromise the

* *The Drafting of the Covenant*. David Hunter Miller. Vol. I, p. 172.

security of fully established democratic countries which would be most reluctant to spend money and effort in accumulating in peace time the resources which they would require in the event of war. It is further maintained that the proposal would tend to provoke rather than to prevent war, and the reasons for this view are set forth in the attached appendix.

5. It is therefore held that the prohibition of the manufacture of munitions and implements of war by private enterprise should be excluded from the main Covenant of the League of Nations and should be reserved for further consideration and examination.

6. To the proposal that there shall be full and frank publicity as to all national armaments and military, naval or air programmes, the fullest acceptance can be given.*

38. The appendix to the memorandum, which deals with the subject in greater detail, and had been prepared in the Naval Staff early in December, 1918, anticipates several of the reasons against the proposed government monopoly, as set forth in my own main evidence. It is reproduced below:—

"1. The idea of a government control of armament firms, eliminating, as it might be expected to do, the influence of wealthy organisations, whose interests lie in the multiplication of war-like material, and whose main profits are derived from war, is an attractive one. It is, however, necessary to examine the results of its probable working and make sure that in eliminating one set of evils worse ones are not introduced.

2. The experience of the war has shown that very few nations are self-supporting as regards armaments and munitions. If it had not been for the factories of the United States, the position of the Allies would have been excessively difficult, if not impossible, before the entry of America into the war.

3. If armament firms had been under governmental control, the supply of their products by a neutral government to a belligerent would have been prohibited by International Law and the vast resources of America would not have been available to the Allies. The effect of this on their fortunes might well have been disastrous. The blockade, which was so largely responsible for the ultimate defeat of the Central Empires, in denying to them munitions or their essential ingredients, produced a state of affairs which may be comparable to the results which would follow from governmental control of armaments.

4. It may be argued that the prospect of such a state of affairs would act as a preventative of war, or at least as a deterrent. This argument obviously breaks down in the case of the late war, because the Central Powers as the aggressors would have had everything to gain by such a rule, which would operate to the advantage of a nation seeking to achieve victory by a sudden attack. Any country dependent on outside sources for the supply of armaments and munitions would be impelled to accumulate munitions and to build up armaments in peace time, if it were not to be at a disadvantage in case of war. An aggressive nation would thus be encouraged to maintain itself nearly on a war footing, a condition of affairs which would tend to precipitate the very explosion it is sought to avoid.

5. If an effective and world-wide League of Nations was established, governmental control or ownership of armament firms would be a perfectly feasible arrangement, and in keeping with the general idea underlying the League. In these circumstances, however, the necessity for such control would largely disappear. It is, moreover, a *sine qua non* that the League should be effective and should include all nations. Nations which are not great munitions producers must have absolute guarantees that if they go to war on behalf of the League the members who are capable of supplying

them with munitions shall place themselves in a position to do so, whether they do or do not undertake active hostilities.

6. Again it would be essential, not only that all nations whether within or without the League should accept the principle of national control of armament firms, but also that the League should be able to ensure that they continue to enforce its faithful observance. Any nation which evades such observance for reasons of economic or military advantage could reduce the effect of the control to a nullity. In the case of explosives, the essential ingredients of which are used to the widest extent commercially, adequate supervision would be well-nigh impossible.

Furthermore, all aircraft are inherently weapons of war. Measures aimed at the limitation of the production of aircraft as part of national armaments would therefore inevitably limit also the production of aircraft for commercial purposes."

39. At the end of the eighth meeting of the League of Nations Commission held on 11th February the first reading was completed and the Covenant was remitted to a Drafting Committee composed of M. Lornaud, Lord Robert Cecil, M. Venizelos and M. Vesnitch, with whom were associated Sir Cecil Hurst and Mr. Hunter Miller.

40. On 12th February a revised version of Article VIII was handed by the British Naval Representative to Lord Robert Cecil, which is described in the records of the Naval Section, Paris, as "Admiralty Proposal 12.2.1919". The new draft deleted the phrase:—

"The High Contracting Parties further agree that munitions and implements of war should not be manufactured by private enterprise" etc., and substituted the words:—

"The High Contracting Parties further agree that the manufacture by private enterprise of munitions and implements of war lends itself to grave objections."

41. This proposal was adopted by the Drafting Committee, whose report, attached to the minutes of the ninth meeting of the League of Nations Commission, held on 13th February, 1919, contains the following suggestion for amending Article VIII:—

"For the second paragraph substitute the following draft:

"The High Contracting Parties further agree that the manufacture by private enterprise of munitions and implements of war lends itself to grave objections, and direct the Executive Council to advise how the evil effects attendant upon such manufacture can be prevented.

The High Contracting Parties further undertake, by means of a full and frank publicity, in no way to conceal either the condition of such of their industries as are capable of being adapted to warlike purposes, or the scale of their armaments, and of their military and naval programmes."

42. From the following note by Mr. Hunter Miller it appears clear that Lord Robert Cecil took full responsibility for the revised draft:—

"Percy said over the phone that Lord Robert Cecil would announce in the meeting tomorrow that the changes in Article VIII had been made this way at his request, so as to clear me from exceeding my authority in the matter."

43. The report of the Drafting Committee came before the ninth meeting of the League of Nations Commission, with President Wilson in the chair, on 13th February. On the subject of private manufacture no discussion is recorded, but that the proposal of the Drafting Committee on private manufacture was adopted is shown by the following extract from the version of the Covenant as it emerged from that meeting (Annex 2 to the Minutes):—

"The High Contracting Parties agree that the manufacture by private enterprise of munitions and implements of war lends itself to grave ob-

* *The Drafting of the Covenant*. David Hunter Miller. Vol. I, pp. 286-8.

* *The Drafting of the Covenant*. David Hunter Miller. Vol. I, p. 223.

jections, and direct the Executive Council to advise how the evil effects attendant upon such manufacture can be prevented (due regard being paid in such recommendations to the necessities of those countries which are not able to manufacture for themselves the munitions necessary for their safety)."

Note.—Here followed the publicity paragraph. The words in parentheses were an amendment proposed by the Portuguese Delegation, which (subject to verbal alterations) was adopted at the tenth meeting of the Commission and found a place in the final Covenant.

44. The text of the Covenant, as presented by President Wilson to the Plenary Session of the Peace Conference on 14th February (but not adopted on that occasion), contained in Article VIII a reference to private manufacture practically identical with that given in paragraph 43 above, except for some verbal changes in the Portuguese amendment. It reads as follows:—

"The High Contracting Parties agree that the manufacture by private enterprise of munitions and implements of war leads itself to grave objections, and direct the Executive Council to advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those countries which are not able to manufacture for themselves the munitions and implements of war necessary for their safety."

45. President Wilson left for America on the evening of 14th February and returned to Paris on 14th March. On 18th March Lord Robert Cecil, the President and Colonel House held a long consultation on the Covenant, at which Mr. Hunter Miller was present. The latter records that Lord Robert Cecil produced a memorandum which had been addressed to him by the Admiralty on the subject of Article VIII, and gave him a copy. This is the memorandum published in *The Drafting of the Covenant* (Vol. I, p. 286), the relevant extracts of which are reproduced in paragraphs 37 and 38 above.

46. On 20th and 21st March a meeting was held with representatives of neutral powers to discuss the draft of the Covenant. So far as private manufacture of arms is concerned, the only points to be noted are that Denmark wished to amend the paragraph so as to "direct the Executive Council to advise how such manufacture can be prohibited", while Norway deemed it "especially necessary to take the

manufacture of arms out of the hands of private speculation."

47. It is unnecessary to refer in detail either to the five further meetings of the League of Nations Commission, interspersed with meetings of the Drafting Committee and the preparation of fresh revisions of the Covenant, or to the meeting at which the Plenary Conference approved the Covenant, since the paragraph in Article VIII relating to private manufacture was only amended in small technical detail. In fact, the form in which it appears in paragraph 44, as presented to the Plenary Meeting of the Paris Peace Conference on 14th February, is the same in substance as the text in which it appears in the Covenant as quoted in paragraph 1.

IV.—CONCLUSIONS.

48. The conclusions appear to be as follows:—

(1) That the idea of prohibiting private manufacture was American in origin, propounded by Colonel House, taken up by President Wilson and pressed by him with great persistence. The amendment of the original proposal to the form in which it now appears in Article VIII, paragraph 5, of the Covenant was due to the attitude of the British Empire representatives, who were prompted by the Admiralty on the recommendation of the three defence departments.

(2) That, except for General Smuts' remarks quoted in paragraph 17 above (which contained no evidence) and the memorandum in a contrary sense by the three British defence services with its appendix quoted in paragraphs 37 and 38, there is no record of any detailed official examination of the question of the alleged objections to private manufacture. Neither in the *Intimate papers of Colonel House*, nor Mr. Hunter Miller's *The Drafting of the Covenant*, nor the Minutes of the League of Nations Commission of the Paris Peace Conference, nor of the Council of Ten, nor the Council of Four, nor of the plenary meetings of the Peace Conference, nor of the British War Cabinet, nor of the Imperial War Cabinet, nor of the British Empire delegation at the Paris Peace Conference, is any trace to be found of any exhaustive discussion of the subject comparable with that devoted to most of the articles of the Covenant, or of any official investigation or of evidence being taken on the subject.

(3) That, with the exception of some very brief remarks by the neutral powers (paragraph 46) and the Portuguese amendment to provide for the needs of the non-producing powers (paragraph 43), no other country is on record as taking any particular interest in the question.

* *The Drafting of the Covenant*. David Hunter Miller. Vol. II, p. 229.

ANNEX III

LETTER FROM SIR OSWYN MURRAY TO SIR MAURICE HANKEY, DATED 4TH NOVEMBER, 1935.

Admiralty.
4th November, 1935.

MY DEAR HANKEY,

Your letter of the 28th October regarding Noel Baker's statement of evidence. I presume that you know that the references to Wemyss's alleged views on the private manufacture of arms, as well as the document which he quotes there, are to be found in Lady Wester Wemyss's *Life and Letters of Lord Wester Wemyss*, pages 405-406.

Lady Wester Wemyss explains the origin of the memorandum by saying—

"He had been much struck by an article by Mr. W. Harbutt Dawson, which seemed exactly to express his own views on the subject, and had asked him to come and talk the matter over and draw up a memorandum embodying the ideas which they shared" (page 405).

Then, after quoting the memorandum, with certain significant omissions, she continues (page 406)—

"This he placed before the Admiralty, where it met with whole-hearted dissent; he was swamped with technical difficulties, confronted with objections which he felt unable to overcome; he

therefore dropped the subject. He always regretted it. He was convinced that if ever disarmament were to become a reality, this was the only means of ensuring it, and the Peace Conference the psychological moment of doing so."

The original of this memorandum, of which I enclose a copy, is amongst our papers dealing with the Admiralty discussions as to matters of Naval interest likely to be raised in connection with the peace terms. It is dated 12th December, 1918, and is initialed W.H.D., and has emendations presumably in Harbutt Dawson's handwriting. There is really no doubt that the author was Harbutt Dawson and not Wemyss.

Lady Wester Wemyss, however, claims that although Harbutt Dawson wrote the memorandum, it embodied Wemyss's considered and strongly held views, and that he adopted it as his own memorandum and placed it before the Board as such.

This view of the case is not borne out by our records nor by my personal recollection of the facts.

It is true that Wemyss approached this question in November-December, 1918, with a feeling against the private manufacture of arms. In our earliest summary of views prepared for a Board Meeting on the 5th December, 1918, there is, under the heading "Sources of Munitions of War" a note saying "C.N.S. considers armament factories should be

nationalised in all countries", but I think that all the evidence goes to show that the feeling with which Wemyss started was not based on any deep consideration of the subject, and that when he had examined it carefully from the point of view of practicability and of the national interests, he changed his mind completely though regretfully.

As for the Harbutt Dawson memorandum, it was merely one of many memoranda expressing different points of view which were circulated during this period when Wemyss, like the rest of the Board, was forming his conclusions on a number of new and difficult problems. It was never circulated over Wemyss's initials or adopted by him in any way. On the contrary, it was circulated exactly as Harbutt Dawson wrote it, containing certain passages (one a complimentary allusion to Lloyd George, and the other an apology that a layman should presume to discuss such technical matters) which could not possibly have stood in a memorandum supposed to express Wemyss's own mind, and which Lady Wester Wemyss has omitted.

During the same period Harbutt Dawson provided another memorandum commenting on the Plans Division memorandum, and Plans Division in turn produced a commentary on his comments, so that there was really no secrecy about his authorship.

On the other hand, it is indisputable that when the final discussions took place at which the Admiralty attitude towards the abolition of private manufacture was defined, Wemyss accepted the conclusions that were reached. He was present at the meetings of the Peace Terms Committee, at which the forms in which these conclusions should be stated was discussed and settled. He actually presided, in the absence of the First Lord, at the Board Meeting of the 9th January, 1919, when these conclusions were finally ratified. Subsequently, as you know, at Paris on the 7th February, 1919, he joined with Sykes and Thwaites in producing a memorandum objecting to the proposed abolition of private manufacture by Article VIII of the Covenant.

I think it would be quite an unworthy aspersion on Wemyss to suggest that in this matter he was overcome by arguments that did not really convince him, and took this prominent part in pressing a view in which he did not really believe. On the other hand, it seems to me quite a reasonable explanation that a careful examination of the problem brought him to the conclusion which the Board, under his presidency, placed on record, namely,—

"The Admiralty recognise that strong arguments may be urged on grounds of public policy in favour of such a problem and they realise that within a League of Nations new relations may come to be established between the States of the world which would make it safe to control armament production; they are not convinced, however, that to do so would be consistent with national safety in existing circumstances."

Believe me,

Yours sincerely,

(Signed) O. A. R. MURRAY.

MEMORANDUM ENCLOSED WITH SIR OSWYN MURRAY'S LETTER DATED 4th NOVEMBER, 1935.

THE PRODUCTION OF ARMAMENTS.

I.—CONSIDERATION FROM THE STANDPOINT OF PUBLIC POLICY.

1. The assumption by the state of responsibility for the production of armaments may be claimed to be the first presupposition of any effective measures for the systematic limitation of armaments.

2. Apart from the moral objections to the present system, which makes warfare a direct occasion of private gain, this system is attended by the inevitable consequence that the multiplication of armaments is stimulated artificially. Every firm engaged in the production of armaments and munitions of any kind naturally wants the largest possible output. Not only, therefore, has it a direct interest in the inflation of the Navy and Army Estimates, and in war scares, but it is equally to its interest to

push its foreign business. For the more armaments are increased abroad, the more they must be increased at home. This inter-relation between foreign and home trade in armaments is one of the most subtle and dangerous features of the present private system of production. The evil is intensified by the existence of international armament rings, the members of which notoriously play into each other's hands. So long as this subterranean conspiracy against peace is allowed to continue the possibility of any serious concerted reduction of armaments will be remote.

3. Merely to adopt measures for the regulation of production (cf. Lord Grey's recent proposal that governments should take steps to acquaint themselves with the shipbuilding done in private yards and its destination, and compare notes on the subject) would be at best an instructive exercise in statistics; it would not contribute to practical peace endeavours.

4. The nationalisation of armament production, if it is to be a real aid to the maintenance of future peace, implies international action. It is suggested, therefore, that one of the articles of the Treaty (or Treaties) of Peace to be concluded with the enemy countries—and in any case with Germany and Austria-Hungary—should require these countries to accept the principle that the production of armaments should be a state monopoly and should undertake to give effect to such measures for the application of this principle as the powers represented at the Peace Conference should reciprocally adopt at a later date.

5. Short of prohibiting the production of armaments of special kinds by private firms altogether, measures would be necessary in order to check production for foreign countries. An international agreement, were it possible, would be the most effective safeguard. For example, if the future expenditure on ship construction were fixed by international agreement, the disadvantage of private firms building for foreign countries—if still allowed—would be reduced to a minimum. If, alternatively, the tonnage of war vessels that might be built in each country were laid down by agreement, it would follow that only so much tonnage as was not built in a government yard for national purposes could be built by private firms.

6. The successful carrying out of any international arrangements of the kind would presuppose the fullest confidence and exchange of information between the treaty powers. Not only would the future naval attachés have more important duties to perform than hitherto, but a standing international intelligence board, composed of experts, delegated by the various governments, might be found indispensable.

7. The proposal would find public opinion sympathetic to a degree which has never existed before. To so moral a measure opposition on principle would be impossible. The opposition would endeavour to justify itself by practical and technical objections, and these it would be necessary to anticipate and guard against. The present P.M. of all men would welcome the idea if put in practical form; its powerful appeal to morality and common sense would influence him greatly.

II.—CONSIDERATION FROM THE TECHNICAL STANDPOINT.

(The following points are mentioned rather than discussed, and are put forward with more than the layman's customary diffidence.)

8. The absolute importance of a thoroughly practical scheme, watertight throughout, every contingency anticipated as far as is humanly possible, with demonstration that it is not merely expedient, which only a small minority of people will doubt, but is workable.

9. The importance of joint action by the Admiralty and the War Office. To clear away the conservatism of the latter might require the use of much argumentative dynamite.

10. No time more favourable than the present for a radical change of system is conceivable. For private shipbuilding yards, plate rolling works,

marine engineering works, and the like will long have as much as they can do in rehabilitating the mercantile marine.

11. The importance of the state keeping hold of the new war shipbuilding yards and suitable munition works and refraining from any precipitate action as to their disposal.

12. The desirability of easing the transition to private firms as far as may be necessary and legitimate with a view to weakening the "vested interests" argument.

13. One of the first objections will be that a nationalised system of armament production might not enable the country to meet a sudden emergency. The first answer is that if the Peace Conference meets the world's expectations the arrangements which it will devise (e.g., effective measures for international conciliation and arbitration, regulation of armaments, reduction of standing armies, etc.) should make impossible any such sudden emergency

as occurred in August, 1914. Nevertheless, government works might be equipped for an output far in excess of the normal and be made capable of meeting with ease and expedition largely increased demands. Power might also be taken to commandeer at any time private works or their staffs.

14. The Parliamentary economists will inevitably raise the question of cost. (They may be hoaxes, but they have a following and must be humoured.) They will ask—Can the state produce as well and as cheaply as private entrepreneurs? It may be thought worth while to work out the *sum au fond*; regarding the government works as commercial undertakings, capitalising them on a reasonable basis, allowing for all administrative expenses, etc., and showing that from the merely material standpoint the nation would receive value for its money.

(Initialled) W. H. D.

(W. HARRITT DAWSON.)

12th December, 1918.

ANNEX IV

THE TEMPORARY MIXED COMMISSION (1921) AND MANUFACTURE OF ARMS AND MUNITIONS OF WAR.

In accordance with a resolution of the First Assembly of the League, dated 14th December, 1920, the Temporary Mixed Commission on Armaments was appointed by the Council of the League of Nations—

"to explore these aspects of the problem of disarmament which were not purely of a technical military character, but might properly be described as involving political and economic issues as well".*

The Temporary Mixed Commission was "composed of persons possessing the requisite competence in matters of a political, social and economic nature to prepare for submission to the Council in the near future reports and proposals for the reduction of armaments provided for by Article 8 of the Covenant."

2. The Commission held its first session in Paris, from 16th July to 19th July, 1921, under the chairmanship of M. Viriani. At the third plenary meeting the work was divided between three Sub-Committees.

3. The First Sub-Committee was to study the following questions:—

(a) The private manufacture of munitions and war material.

(b) The traffic in arms and munitions.

It was, further, in the matter of private manufacture, to give its opinion on the draft resolution of M. Jouhaux in favour of convening an international conference to regulate the private manufacture of arms.

4. The members of the First Sub-Committee were:—General Marietti and Admiral Gough-Calthorpe, representing the Permanent Advisory Commission on Naval, Military and Air questions; M. Jouhaux, labour; M. Hodges, employer; Mr. Fisher (the present Warden of New College, Oxford); M. Rivas-Vieyra, political; MM. Jansen and Janovic, economic and financial.

5. Three meetings were held in Paris, namely on 18th and 19th July, 1921; and three in Geneva, namely, on 1st, 2nd and 3rd September. Mr. Fisher was elected President at the first meeting, but was not present at the three Paris meetings, at which M. Rivas-Vieyra, the Vice-President, took the Chair. Sir Hubert Llewellyn Smith deputising as a member for Mr. Fisher. Mr. Fisher, however, presided at the three Geneva meetings, and was responsible for drafting the report, in which Sir Hubert Llewellyn Smith (as I have been informed by both Dr. Fisher and Sir Hubert) collaborated. Admiral Gough-Calthorpe was present only at the Paris meetings. He was replaced by Captain Segrave at the two first Geneva meetings and by Commander Phillips at the final meeting.

* Report of the Temporary Mixed Commission on Armaments.

6. The Members of the Committee, as Mr. Fisher reminded them at the first Geneva meeting, "did not represent their various Governments, and therefore the Committee could only act in an advisory capacity". (*Procès-verbal*, first Geneva meeting.)

7. A study of the proceedings reveals that the first meeting was of a general character, that the next three were devoted to general discussion, and that the last two were occupied with consideration of the draft report prepared by the President. The report was completed on 3rd September and was incorporated in the published report of the Temporary Mixed Commission dated 15th September, 1921, which also included a report by the First Sub-Committee on the Traffic in Arms.

NO EVIDENCE TAKEN.

8. It has been suggested in *The Secret International* (Chapter I), published by the Union of Democratic Control, that—

"These are definite charges, and it is a pity that the evidence on which they were based has not been published."

and again in the evidence before the Royal Commission.

"The evidence given to the Commission has not been published." (5th Day, Appendix I, p. 135, col. 1.)

9. The only document before the Temporary Mixed Commission was one circulated by the Secretary-General entitled "Questions the study of which has already been begun by the Military Commission, the Council or the Assembly" (League of Nations document C.T.A. 4). The passage relating to "Private Arms Manufacture of Munitions and of War Material" is attached as an Appendix. This can hardly be described as evidence and has been published.

10. A study of the *procès-verbaux* of the Sub-Committee reveals that in fact no outside evidence was taken. Memoranda were produced by members both for and against the prohibition of private arms manufacture. The discussion was general in character, and the members of the Sub-Committee were equally divided on the question of whether an international conference should be held to consider the question of the private arms industry, which indicates their attitude towards the main issue. No questionnaire on the subject was addressed to governments.

11. As at first I was unable to obtain the official *procès-verbaux* of the Sub-Committee, and, as there was some doubt at that time as to whether they were in existence, I wrote to the British nationals who had collaborated in the work in order to obtain their impressions on the questions of (1) evidence, (2) the status of the six points alleged against private manufacture.

12. The above participants are unanimous that no evidence was taken from outside the Sub-Committee. "My personal recollection," writes Sir Somerset Gough-Calthorpe, "is that this First Mixed Commission took no evidence at all about the private arms industry." Vice-Admiral Segrave, who replaced him, writes: "I am quite certain that no evidence was taken about the private arms industry." Captain Phillips confirms that "No evidence was taken by the Commission whatever." Sir Hubert Llewellyn Smith writes: "So far as I can remember we took no evidence." Mr. Fisher, who, as already mentioned, was chairman of the Sub-Committee, writes: "No evidence from persons outside the investigating bodies was taken to the best of my recollection."

13. These recollections, in combination with the official *procès-verbaux*, place beyond doubt that no evidence was taken from outside the Sub-Committee.

THE STATUS OF THE SIX POINTS AGAINST PRIVATE MANUFACTURE.

14. A good deal of use has been made in public controversy, and even in evidence before the Royal Commission, of the six points against private manufacture formulated in the report of the Sub-Committee. These points are constantly cited by those who favour prohibition of private manufacture as "charges" by the Temporary Mixed Commission, and the idea has been promulgated all over the United Kingdom and the British Empire in books,* pamphlets and speeches. "These are definite charges," says the Union of Democratic Control in *The Secret International*, "and it is a pity that the evidence on which they were based has not been published." Notwithstanding Sir John Simon's exposure in the House of Commons on 8th November, 1934, this misrepresentation dies hard and, as the evidence shows, is still clung to in some quarters.

15. A study of the *procès-verbaux* of the First Sub-Committee shows how divided the members were. At the second Geneva meeting, for example, the main opponent of private manufacture, in discussing the draft report, is on record as complaining that—"As regards the private manufacture of arms, the only arguments produced were against its suppression and they almost amounted to definite proposals put forward by the Commission. He pointed out that the report was assuming a form definitely opposed to the suppression of the private manufacture of arms."

16. After the Chairman had proposed a modification to meet this criticism, the principal supporter of private manufacture (not a British subject) "made reservations as regards the principle of freedom of industry and again asked that the report should mention the various arguments put forward but should not say that the Commission had adopted any definite conclusion."

17. After another (foreign) member of the Committee had associated himself with this remark—

"The Chairman replied that this paragraph and the following paragraphs did not embody the conclusions of the Sub-Committee, but were simply a statement of the problems which the Committee had examined.† He added that public opinion laid the largest share of blame on the private manufacture of armaments for the reduction of which numerous methods had been proposed, and that the Committee should therefore declare itself ready to examine every method which had been suggested. The final draft of the report would be modified in order to meet the various suggestions which had been put forward. (General approval).‡"

18. On this point Mr. Fisher, who was not only chairman of the Sub-Committee, but who writes that "I was to the best of my recollection largely responsible for the report," states in a letter dated 23rd July, 1935:—

* For example Mr. Beverley Nichols' *Cry Havoc* where the so-called "charge" is repeated twice in the first chapter. This book had a wide circulation.

† Italics not in the original.

‡ Official *procès-verbal* of second Geneva meeting.

"It is correct to say that the statements in the report were propositions *pro* and *con* which had in fact been urged and did not represent any findings of the Committee as to their validity." Sir Hubert Llewellyn Smith writes (19th July, 1935):—

"I never was Chairman of the Temporary Mixed Commission, but I attended several meetings either of that body or of the First Sub-Committee—I find it difficult to remember which. Anyhow I gave Fisher some help in drawing up the statement of objections and advantages, but I am quite certain that this was intended to be a catalogue of objections (or the converse) which had in fact been urged, and in no way represented any 'findings' of the Committee as to their validity."*

The above statements prove beyond question what was in the minds of the draftsmen of the report.

19. If any doubt is felt on the subject, however, it is only necessary to turn to the language of the report itself. For example, the six points against the industry are introduced by the following paragraph:—

"The Covenant recognises that the manufacture by private enterprise of munitions and implements of war is open to grave objections. What are these objections? They are not defined by the Covenant; they cannot be extracted from the deliberations of the Committee which drafted the Covenant. It is, however, common knowledge that the public mind is strongly prejudiced against the uncontrolled private manufacture of munitions and implements of war, and that it is a common belief that wars are promoted by the competitive zeal of private armament firms, and would be rendered less frequent were the profit-making impulse brought under control or eliminated altogether. In general, the objections that are raised to untrammelled private manufacture may be grouped under the following headings:—"

(Here follow the six points.)

20. If there were any room for doubt, however, it would be removed by the following paragraph, which follows almost immediately after:—

"The Sub-Committee is unable to-day to reach a final conclusion upon the difficult and complicated topic submitted to its consideration. It cannot at the present stage of its deliberations, either recommend the abolition of private manufacture or advise upon the particular steps to be taken to control it should it be decided that on the balance of advantage private manufacture must be allowed to continue. The Sub-Committee must then content itself for the present with indicating some of the difficulties which confront the total abolition of private manufacture and some of the problems which have to be faced before a complete code of regulations can be recommended should regulation ultimately be preferred to prohibition."‡

Could anything reveal an air of greater detachment than the above paragraph?

21. The next paragraph points to the same conclusion:—

"If private manufacture were altogether forbidden, it would result that all manufacture of munitions and implements of war would be conducted by State enterprise. In the consideration of such a course the following difficulties have been suggested by some members."†

(Here follow eight points to illustrate the difficulties.) Is it likely that those members of the Sub-Committee who had suggested these eight points against prohibition of the private arms industry would at the same time have regarded the six points in favour of prohibition as a conclusion?

22. Finally, those members of the Permanent Advisory Commission on naval, military and air questions who had represented it on the Temporary Mixed Commission reported to the Permanent Advisory Commission in the following words:—

"The Plenary Commission adopted a general Report put forward by the Sub-Committee. The

* The originals of these letters will be communicated to the Secretary to the Royal Commission, if desired.

† Italics not in the original.

Report examines in the first instance without accepting them as the views of the Sub-Commission, the objections brought forward against Private Manufacture; then, still adopting a neutral attitude, points out—

(a) the possible consequences which would arise from total prohibition of private manufacture, and

(b) the measures which might be taken in order to exercise control over such manufacture."

23. It is important, in the interests of fairness and truth, that the Royal Commission should finally dispose of this mischievous misrepresentation that has done so much harm.

CONCLUSIONS.

24. The conclusions of this Annex are:—

(i) That no outside evidence was taken.

(ii) That the six points against private manufacture were neither "charges" nor "conclusions," but merely a catalogue of objections, which had in fact been urged. In fact the six points against private industry and the eight points against its prohibition were propositions pro and con which had in fact been urged and did not represent any findings of the Committee as to their validity.

APPENDIX TO ANNEX IV.

II.—QUESTIONS THE STUDY OF WHICH HAS ALREADY BEEN BEGUN BY THE MILITARY COMMISSION (P.A.C.), THE COUNCIL, OR THE ASSEMBLY.

I.—PRIVATE MANUFACTURE OF MUNITIONS AND OF WAR MATERIAL.

Article VIII of the Covenant* deals with the question of the private manufacture of munitions and of war material. Article IX designates the Military Commission (P.A.C.) as specially constituted to advise the Council on the execution of the provisions of this Article, amongst others.

On 14th December, 1920, the Assembly requested the Council to investigate the question of the private manufacture of munitions and of war material, and at the same time to consider whether the Central International Bureau contemplated by the Arms Traffic Convention could not also be utilised to obviate the evils arising from the private manufacture of arms.

* Article VIII.—"The members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety."

On 23rd February, 1921, the Council decided that:—

"The Military Commission (P.A.C.) acting in conjunction with the Temporary Commission (T.M.C.) shall study the question as contemplated by Article VIII of the Covenant, and shall submit a report on the subject to the Council."

On 23rd February, 1921, an exchange of views took place between members of the Military Sub-Commission of the Military Commission (P.A.C.) of which the following are the conclusions:—

1. No direct action other than that already provided for by the Treaties of Peace can be taken in the case of producing States against the right of their private factories to manufacture war material.

2. No action can be taken to prevent non-producing States from becoming producers if they have the will and the means.

3. If at some future time measures were contemplated to diminish production by limiting the exportation or sale of war material, these would be unlikely to be accepted by producing States Members of the League, unless non-Members were ready to accept similar limitations.

4. At the present moment, the only measure which may be expected to diminish the evil effects of private manufacture is that of applying the clauses of the Convention of Saint-Germain and thus ensuring the publication of the amount of war material passing between different countries. The results obtained by the execution of this Convention will be the best guide to ascertaining what further measures are possible and likely to prove effective.

The Belgian Delegation put forward the following remarks with regard to conclusion 4:—

"The publicity which it advocated would not produce any result so far as the restriction of the traffic in arms, and their manufacture, was concerned. The Belgian Delegation wondered if it would not be possible to attain better results by an agreement between the States Members of the League, to pass legislation with a view to reducing or limiting this industry and traffic. There could be no difficulty in doing this from a domestic point of view, seeing that some States had not hesitated, in the interests of humanity, to interfere with private industry—in particular, with industries concerned with the manufacture and sale of alcohol (Scandinavian countries, Belgium, United States)."

At its fifth session, the Military Commission (P.A.C.) decided to wait until it had been "informed of the programme of work adopted by the Temporary Commission" (T.M.C.) before proceeding further with its consideration of the question.

ANNEX V.

BRITISH DOCUMENTS ON THE ORIGINS OF THE WAR, 1898-1914.

(Note by the Secretary to the Historical Section.)

Ten volumes of this series have so far been published, namely, Volumes I-IX and XI. They cover a period dating from the South African War and terminating with the outbreak of the Great War. Volume X, which is in preparation, treats of events from September, 1913, to the assassination of the Archduke Franz Ferdinand at Sarajevo on the 28th June, 1914.

The text comprises 7,242 pages of an average of about 550 words each, or, say, 4,000,000 words. I do not profess to have read the whole of this material, as it would probably take several months to do so, but I have endeavoured to select all the passages that have any bearing on armaments.

I attach a short précis of them.

The subject matter includes, among other questions, the Fashoda crisis, the South African War, the Anglo-Japanese Alliance, the Russo-Japanese War, the first Morocco crisis, the Algiers Conference, the

Bulgarian Declaration of Independence, the annexation of Bosnia and Herzegovina by Austria-Hungary, the Agadir crisis, the Tripoli (Turco-Italian) War, and the Balkan wars.

There is very little to be found in these volumes relevant to the Terms of Reference of the Royal Commission: the private manufacture and trading in arms and munitions as a contributory factor in bringing about a war or creating war scares.

VOL. I.

No. 118, p. 83 gives terms of the Anglo-Portuguese Secret Declaration, dated 14th October, 1899 (outbreak of South African War), confirming certain articles of the 1661 and 1662 Treaties. Under this Agreement Portugal undertook, during the war, not to allow the importation and passage of arms and munitions destined for the S.A. Republic to pass through Portuguese territory, and not to pre-claim neutrality. The latter condition was inserted so as to enable British ships to coal in Delagoa Bay.

No. 271, p. 222.—Lascelles to Salisbury, Berlin; 22/12/98. (Interview with the Emperor of Germany.)

Count Mouraviev, Russian Foreign Minister, proposed (December, 1898, eve of Hague Peace Conference) that a meeting of experts should be called to prevent any further inventions, which would increase the destructiveness of modern weapons. German Emperor told our Ambassador at Berlin that this proposal evidently originated with M. de Witte, Russian Finance Minister, that Russia had no inventors or manufacturers, and was obliged to purchase all her munitions abroad. This constituted a heavy drain on the resources of the country, and it was only natural that de Witte should wish that the vast sums which went to enrich the foreigners should be spent at home.

The Emperor mentioned that Krupp had been invited to tender for the construction of a new gun for the Russian artillery. He added that the German gun was the best in existence, and that the French new field gun had proved very disappointing.

No. 274, p. 224.—The Admiralty (May, 1896) considered that the proposal to restrict improvements in weapons was a retrograde step, and would favour the interests of savage nations.

VOL. II.

No. 135, p. 126.—Satow to Lansdowne, Peking 13/2/02. The United States Minister thinks the Anglo-Japanese agreement (signed 30/1/02) the most important political event that has taken place for a long time. He thinks that the Japanese are hurrying to go to war to turn the Russians out of Manchuria, and could easily put 100,000 men there within a month.

No. 241, p. 211.—Communication from War Office 29/7/03. (Note on Russian position in Manchuria by Wingate after his visit there.) Port Arthur is fast becoming a Far Eastern "Kronstadt". Some 60,000 Chinese labourers are at work on the new town, harbour, dockyard, fortifications, military roads and buildings. The results of a conflict with Japan might be disastrous to Japan, while, even if she were to get the best of the war, Russia would not suffer greatly. (There is nothing in the documents about Japan's preparations for the war, which broke out on 8/2/04.)

VOL. III.

CHAPTER XX.—Anglo-French and Anglo-Belgian Conversations 10/1/06—30/4/06. Dealing with British co-operation with France and Belgium in the event of Germany attacking France through Belgium. Mainly correspondence between Grierson, D.M.O., War Office and Bernardston, British M.A. at Brussels and The Hague. Nothing about armaments.

VOL. IV.

No. 296, p. 312.—Government of India to Young-husband, 26/6/04. In satisfaction for failure to fulfil Treaty obligations and for various other affronts, Government of India suggest terms to be demanded of Tibet, including "no arms to be imported or manufactured without British permission".

p. 315, ANN. VIII.—Signed Convention with Tibet reads:—Tibet agree to "raise all forts and fortifications and remove all armaments which might impede the course of free communication between the British frontier and the towns of Gyantse and Lhasa". (Convention signed at Lhasa 7th September, 1904.)

VOL. V.

pp. 148-163.—Negotiations for a commercial treaty between Austria-Hungary and Serbia were under consideration, but making little progress.

No. 123, p. 160.—Thessiger to Grey, Belgrade, 19/4/06. Austria makes the granting of a commercial treaty conditional on the order for guns and other contracts being placed with Austrian firms. Serbia looks on this as a species of blackmail.

No. 136, p. 154.—Thessiger to Grey, Belgrade, 11/7/06. All efforts to bring about an understanding between the two countries have failed, and the general tariff came into force on both sides.

No. 140, p. 158.—Whitehead to Grey, Belgrade, 14/11/06. There is good authority for stating that the Serbian Government have given orders to Messrs. Schneider of Crenot (France) for the supply of 45 field batteries, 8 mountain batteries, and 2 batteries for Horse Artillery. It is believed that M. Pasitch (Serbian P.M.) insisted on buying the guns from Schneider, because Bulgaria had done so in 1905. It was important the weapons of each country should be as nearly as possible the same, and the ammunition interchangeable to facilitate combined action in certain eventualities.

No. 142.—Price of speech by M. Pasitch in the Shupshina on 27/11/06 on the question of Artillery Armaments.

The trials of a battery of Q.F. guns, purchased from the Skoda factory (Austria) in 1903, gave unsatisfactory results, and an Artillery Commission was despatched to various gun factories and ordered to report. Some of the members favoured Schneider and some Krupp. [These were the only two firms mentioned. Apparently Skoda was further down the list.] Eventually Schneider's model obtained the greatest number of "very good marks," and the order was given to them.

VOL. VI.

The title of this volume is Anglo-German tension, 1907-12. It is the only volume whose Index refers to armaments. There are over 400 references to naval armaments, and it would take a long time to summarise them. It is not, however, necessary to do so as they deal almost exclusively with the increase of the German Fleet during those years.

A great deal of space is taken up by the reports of our Naval Attachés, chiefly on German ship-building. A report by Captain Dumas in 1907 showed that at that time our naval preponderance over that of Germany was overwhelming. Germany then began in earnest to increase her fleet. In December, 1907, the amendment to the Fleet Bill was published.

In the debate in the Reichstag on this subject, Herr Behl, leader of the Social-democrats said: "Against whom is the increase directed? The Navy League declares it openly. England and once more and again England."

No. 532, p. 672.—Cochran to Nicholson, Berlin, 9/2/12. Haldane's Conversation with Tirpitz.

Tirpitz, during his long term of administration had the joy of seeing England's naval superiority over Germany substantially reduced. But the events of last summer (1911—Agadir crisis) showed that the German Fleet was still not ready for serious business. After a severe struggle with the Chancellor and the military authorities, he had succeeded in getting his proposals for a still further increase of construction accepted. Haldane left him in no doubt that we should lay down two keels to one.

VOL. VII. MOROCCO.

ENC. 1 to No. 91, p. 78.—White to Crouse, Tangier, 23/2/08: French terms for supporting Sultan of Morocco reported to include "the control of the contraband of arms."

No. 93, p. 81.—Lascelles to Grey, Berlin, 6/5/08: German merchants at Safi furnish Mulai Hafid (rebel brother of Sultan) with arms and ammunition.

No. 101, p. 87.—de Bunsen to Grey, San Sebastian, 7/9/08: Spain suspects France of secretly supplying Sultan with means to prolong hopeless struggle against his brother.

No. 115, p. 106.—de Salis to Grey, Berlin, 30/10/08: Recognition of Mulai Hafid as Sultan: the date of his accession became a question, as payment to German and French merchants for supplies was involved. This, however, led to no trouble.

No. 148: ANN. 2, p. 134.—Bertie to Grey, Paris, 1/2/09: "The rapprochement in Morocco has taken the form of a deal about the arms contract." No further reference is made to this.

No. 163, p. 147.—Lister to Grey, Tangier, 9/2/10: Morocco orders four batteries from Krupp: 5,000 mauler rifles and a million cartridges from Hamburg firm believed to be named Genschau.

No. 166, r. 150.—Lister to Grey, Tangier, 20/2/10: In order to force Soltan's signature to Franco-Moroccan Convention, France intended to stop entry of all arms and munitions no matter whence they came or where they arrived. Convention was signed on the 4th of March, so threat was never made.

No. 186, r. 173.—Goschen to Grey, Berlin 13/12/10: German Minister for Foreign Affairs pointed out in the Reichstag that the French ship then in Agadir harbour was there on police duty to prevent the smuggling of arms.

No. 284, r. 269.—Enclosure to Minute by Grey, 22/5/11: French Ambassador requests British Government to renew for one year the mandate to France and Spain to suppress contraband trade in arms in Morocco.

No. 300, r. 273.—Grey to Bertie, 30/5/11: French Ambassador has been told that we had no interest in arms traffic in Morocco, but considered that in return for our compliance we expected France to consent to the suppression of the arms traffic in the Persian Gulf.

No. 644, r. 635.—Colonel Fairholme (B.M.A., Paris) to Bertie, 7/9/11, in a long report on the French Army mentions that recently abnormal activity had been displayed in preparing for war. As regards armament the French had got, and knew how to use, the best quick-firing gun in existence, superior to the German gun in several respects. The French infantry rifle is practically as good as the German rifle. The French field artillery is somewhat weaker in guns than the German, but this disparity will be more than compensated by the marked superiority of the French gun itself, as well as by the better French artillery methods and training, and also by the four-gun battery organisation.

APP. 1, r. 798.—Oppenheimer to Grey, 21/10/11. A long report on the present financial position in Germany as affected by the recent Moroccan negotiations, shows that the weakness of the German financial position was greatly exaggerated, and that, contrary to the current statement that it was the financial situation which had deterred Germany from going to war, it was the state of the navy that proved the deterrent. The report brings out the really sound position of the German banks, the existence of a definite scheme for financing a big war which will operate automatically when war is declared; and the pressure which the banks will inevitably exercise, at a time of prolonged crisis, to bring about—not so much a peaceful—but any solution, peaceful or warlike; the period of expectancy and indecision is fatal to the banks, but they are prepared to meet the situation once war is actually decided upon. The intervention of the banks made Germany declare for peace since she was not ready for war; she was thereby unable to prolong the period of uncertainty whether it suited her to do so or not.

VOL. VIII.

No. 368, r. 471.—Nicolson to Grey, St. Petersburg, 6/10/02. Sazonov, Russian Acting Foreign Minister, has been informed that Japanese Government intended to purchase the Brazilian battleships which had been constructed in England, and that Japan was preparing to undertake a campaign against Russia in about 18 months time. Would Nicolson make enquiries.

No. 369, r. 472.—Admiralty to Foreign Office, 27/10/09. There is no reason to suppose there is any truth in above rumour. (There was much agitation in Russian press regarding Japan's supposed aggressive intentions against Russia. There was no foundation whatever for this.)

VOL. IX (PART 1).

No. 532, p. 523.—Granville to Grey, Berlin, 21/12/1911. A report from "The Times" reprinted in Germany, states that a trainload of war material from Germany had reached the Turkish frontier, and had there been taken over by Turkish officials. The German paper commented that if there was any truth in the report at all it could only be a question

of medical supplies. A minute by Mr. Malles states that Mr. Lamson reported that the story was true, but that it was not a violation of neutrality.

No. 602, r. 560.—Buchanan to Grey, St. Petersburg, 21/3/1912. Russia tried to dissuade Turkey from signing a contract with Armstrongs for cruisers. M. Tcharykew, Russian Ambassador at Constantinople, claimed that he had succeeded in deferring the signing for four years, and that the building would take three years. Turkey signed on the following day, all work to be completed in 2½ years. (Cited as instance of Turkish imposition on Russian Ambassador.)

No. 588, p. 585.—Granville to Grey, Berlin, 11/7/1912. German Emperor reported to have urged Russian Minister of Marine to place his shipbuilding orders in Germany, promising that six "Moltke's" could be supplied in a comparatively short time.

No. 806, r. 762.—Nicolson to Grey, 30/9/1912. The head of Cammell Laird's has been enquiring this morning whether we have any objection to their selling to the Greek Government immediately two battleships they have ready for Argentina.

No. 808, rr. 765-6.—Memorandum by Sir E. Grey, 4/10/1912. H.M. Government are doing everything in their power to prevent arms going overland into Afghanistan. Traffic now centred in Muscat where control is impossible owing to claim made by French Government that the trade in arms and ammunition should be free. The result has been seriously to prejudice the cause of order and good government in Afghanistan and Persia. Sultan of Muscat recently introduced a system for regulating the traffic of which H.M. Government are endeavouring to secure French acceptance.

VOL. IX (PART 2).

No. 310, r. 291.—Grey to Goschen (Berlin), 29/11/1912. The German Ambassador says reports that Germany was encouraging Turkey to resist by supplying her with officers and arms were quite untrue. Germany had, in fact, allowed Cresset guns to go through to the Balkan States, because she did not wish to be accused of obstructing French industry.

No. 317, r. 296.—Lowther to Grey, Persia, 3/12/1912. German and Austrian Governments are only so far aiding Turkey in despatching guns by allowing Cresset guns to come through their countries. No evidence is obtainable of arrival of German artillerymen at Persia.

No. 413, r. 314.—Buchanan to Grey, St. Petersburg, 24/12/1912. Austria-Hungary object to Serbia being allowed to import munitions in time of war. Serbia insist on having this right, pointing out that it would always be perfectly easy for munitions to be seized by Austria-Hungary as contraband of war at sea as entrance to Adriatic is so narrow.

No. 426, r. 323.—Next above repeated by Grey to Rodd (Rome), 31/12/1912.

No. 658, r. 536.—Bax-Iroussie to Grey, Sofia, 25/2/1913, reports that 26 new Cresset guns from Serbia have been cited for use against Adrianople.

No. 968, r. 785.—Cartwright to Nicolson, Vienna, 9/5/1913. Government circles in Vienna believe that the Scutari question which has agitated Europe for weeks has been bolstered up by King Nicholas (Montenegro) as a Bourse operation at the expense of the European public. It is asserted that the King has made "his pile" by these operations which may prove his cleverness but not his honesty.

No. 1185, r. 925.—Grey to Cartwright (Vienna), 21/7/1913. The French Ambassador said that the Turkish Government would not be very frightened by the refusal of financial help, as they knew that several of the powers already had such financial interests in Turkey that they could not allow a Turkish financial collapse. Grey replied that nevertheless if help were given owing to this consideration it might imply an amount of European control that would not be very favourable to Turkey.

No. 1248, r. 933, Goschen to Grey, Berlin, 20/8/1913. Russian Government suggest financial boycott to stay Turkish advance. Germany would

appeal to her banks and do all possible to prevent money going from Germany to Turkey, but Herr von Jagow pointed out that recent experience had shown how difficult it was to prevent private financial groups from lending money where it was their interest so to do.

VOL. X.

In preparation. Deals with events from September, 1913, to the Sarajevo assassination.

VOL. XI.

This volume contains nothing about armaments, but it has two items of interest: (1) An article in the "Matin" of 18th July, 1914, by M. Jules Hedeman, special correspondent of that paper, writing from St. Petersburg, emphasising the enormous strength of the Russian army, and (2) A report from Sir F. Oppenheimer from Berlin on the strong financial position of Germany.

(1) No. 66, p. 52. Granville to Grey, Paris, 18/7/14. Hedeman reports that an extraordinary awakening of Russia is manifesting itself. By the winter of 1916 the Russian army on a peace footing will total the colossal figure of 2,245,000 men. She will then possess an active army greater in number than the joint forces of the Triple Alliance. (There is no mention of how this army is going to be provided with arms.)

(2) No. 322, p. 205. Cochen to Grey, Berlin, 30/7/14. Oppenheimer reports that since the Morocco crisis (middle of 1911) the whole financial policy of Germany has been guided by only one consideration—her financial preparedness in case of war.

The gold at the disposal of the Reichsbank on 15th July, 1914, amounted to £87,200,000 (compared with £44,200,000 on 15th July, 1911). Supply of silver was £15,000,000. The war chest at Spandau held £10,350,000. There was also a further silver reserve of nearly £6,000,000.

Since the Morocco crisis every one of the leading banks had greatly improved its financial status under pressure from the Reichsbank.

The deposits in the savings banks had also enormously increased.

The Prussian loan of early 1914 was over-subscribed 70 times, proving the extraordinary abundance of money in Germany.

Germany's financial strength is the strength of the lesson taught by the Morocco incident. She has ever since been determined to show the world that on that occasion she had decided "reculer pour pouvoir mieux sauter." As far as her financial position is concerned, she has attained her object.

Minute by Eyre Crowe.

A great contrast to the panic here. Germany is organised and the Government gives guidance and help.

ANNEX VI

THE MULLINER CASE.

(ADMIRALTY NOTE.)

1. The usual version of the Mulliner legend is that Mr. Mulliner, the managing director of the Coventry Ordnance Works, brought about the increase of the British naval programme in 1909-10 by furnishing information purporting to show that Germany was accelerating or augmenting her naval programme under the German Navy Law and that, after the additional British ships had been built, with great advantage to Mr. Mulliner's own firm, this information was found to be untrue.

2. The story was referred to by Mr. Philip Snowden in the House of Commons on the 18th March, 1914 (*Official Report*, page 2136):—

"The House will remember the Mulliner incident. Mr. Mulliner was a Director of the Coventry Ordnance Works. What is the Coventry Ordnance Works? It is another name for John Brown and Co. The Cammell Laird Co. and the John Brown Co. own most of the shares. Now we had it on the authority of Mr. Mulliner himself that for three years before 1909 he was constantly writing to the Government and appealing to them in other ways to spend more money upon armaments, and giving them information, which was afterwards found to be totally untrue, in relation to what Germany was doing. I do not suppose that it is a very usual practice for Cabinet Ministers to interview commercial travellers and touts, but they made a departure on this occasion and after three years of importunity, they enlisted the services of this gentleman, who was received by the Prime Minister and other members of the Cabinet; and then the Prime Minister and the First Lord of the Admiralty came down to this House with that bogus story about the acceleration of the German programme, and it has since come to light that their only authority was the man whose works were standing idle at that time and was so anxious to get Government work."

3. The most picturesque version of the story is that attributed in the *Nexs Chronicle*, 21st February, 1935, to Dr. Maude Royden, in which, however, Mr. Mulliner is not mentioned by name:—

"She declared that before the War he told the Admiralty that Germany was making preparations to create a huge navy so that during the 1910 election there was a public outcry for eight new battleships.

That was because this man had convinced the country that Germany was laying down from 12 to 25 more battleships.

In the end we laid down four more battleships than was intended, and by an odd coincidence one of the first contracts went to this agent's firm.

Yet the Germans had not built the ships referred to. They had not built one above their legitimate programme."

The *Star* of the same date published a similar article under the not-inappropriate headline "Just a Lie."

4. Now as to the facts.

5. In May, 1906, Mr. Mulliner wrote a letter (copy in Appendix I) to General Hadden, Director of Artillery, War Office, which the latter passed on to the Admiralty, asking whether he was aware of the enormous expenditure now going on at Krupp for the purpose of manufacturing very large naval guns and mountings quickly, and giving details, based on information which had come under Mulliner's notice, as to Krupp's orders for new plant and equipment. Mulliner supplemented this information from time to time up to June, 1908. The information was substantially correct and was later confirmed by other evidence. As will be explained later the German programme of naval construction was increased in 1906 and still further increased in April, 1908. It would obviously require considerable expansion in the Krupp works to supply the armament for the new Dreadnoughts. There was in reality nothing unexpected or startling in the rapid development of German capacity to construct guns and gun mountings—it was an obvious concomitant of the increase in their shipbuilding programme.

6. In the winter of 1908-9, information came to hand from quite other sources which seemed to show that the German programme was actually being accelerated, and in the light of this extraneous information, Mulliner's information as to the extent to which acceleration had become practicable appears to have been regarded as having increased importance, and to have been treated seriously by the Government.

7. On the 24th February, 1909, Mr. Mulliner had an interview with Sir Charles Ottley, the Secretary of the Committee of Imperial Defence (a copy of the latter's note is enclosed in Appendix II). He had a further interview with him on 8th March (note in

Appendix III). On 3rd March there was a meeting with Ministers of which Mr. Mulliner gives an account in a letter published in *The Times* on 17th December, 1909, as follows:—

"The following week I was sent for to Downing Street and at this interview Admiral Fisher and Admiral Jellicoe were present, as well as nearly all the Members of the Cabinet. At that interview I pointed out that what had now proved to be accomplished facts were set forth in my letter of May, 1906. Admiral Jellicoe admitted that he had received that letter and that I had referred to it at many subsequent interviews. I asked Admiral Fisher also to confirm this so far as he was concerned, but was unable to understand his reply.

I pointed out mistakes in the 12-in guns then adopted in the Navy. I pointed out the inferiority of our means of production in this country, and how hopelessly we were behindhand compared with Germany. I proved that in Germany nearly three times more gun steel and armour plating had been manufactured each year since 1906 than in this country, and how the Ordnance Works had been precluded from tendering on large mountings. On the last point I saw Mr. McKenna a few days afterwards."

8. Mr. Mulliner gave a chronological account of his activities in a letter to *The Times* dated 1st January, 1910 (*Times*, 3rd January, 1910), which subsequently achieved notoriety as "Mr. Mulliner's diary". It is important to note that Mr. Mulliner laid no claim to have made any statement in regard to the ships which were building by Germany. He claimed, and his claim is borne out by the statements already quoted, that his information related solely to the expansion of Germany's productive capacity, and to her capability of increasing her naval programmes, and not to a statement as to her intentions.

9. So much for Mulliner's own story.

10. Turning now to the increase in the British naval programme in 1909-10 we find that this was, in fact, due to quite other causes.

11. The policy of the Conservative Government in regard to the construction of Dreadnoughts had been laid down in Lord Cawdor's statement on Admiralty policy 1905 (Cd. 2791) as follows:—

"At the present time strategic requirements necessitate an output of four large armoured ships annually, and unless unforeseen contingencies arise, this number will not be exceeded. The period of building is to be two years, and therefore four ships will be laid down each year, and there will be eight ships in course of construction in any one year, either in the dockyards or by contract.

The Board have come to the conclusion that the right policy is to make out their programme of shipbuilding for the next year only, and while they anticipate at present that the output of four large armoured ships a year should suffice to meet our requirements, there would be no difficulty whatever in increasing this output to whatever extent may be necessary in consequence of any increase of naval power abroad."

12. In 1905 the programme of four large armoured ships was carried out, but when the Liberal Government came in they laid down three only in 1906, three in 1907 and two in 1908. Thus by 1909 there was already a deficiency of four ships compared with the minimum Conservative programme. Moreover, that programme was related to the German programme which was based on the German Navy Law of 1900. This programme was only followed out till 1907, but in April, 1908, a new Navy Act increased the rate of replacement of older ships, with the result that Germany built four Dreadnoughts in 1908 as against three in 1907. Not only, therefore, had this country reduced construction, but Germany had increased. Moreover the Government had become alarmed at the possibility that even this increased programme was being accelerated.

13. On the 16th March, 1909, the Navy Estimates were introduced and the First Lord informed the House of Commons that the Government was in a difficulty as it did not know the rate at which German construction was taking place, but that it

was believed that the German programme of four Dreadnoughts a year was being accelerated, as information had been received that the collection of materials, etc. for a number of ships had been begun in advance of the programme dates, and that in view of the possibilities of this new situation, the Government had decided to take power to increase their intended programme of four Dreadnoughts by four more, which could be laid down in time to be completed by March, 1912.

14. Immediately after the debate on the Estimates, Admiral Tirpitz denied in the Reichstag that there was any acceleration of the German programme, and the German Ambassador approached Sir Edward Grey with a similar denial. Admiral Tirpitz's speech was the subject of a question in the House, which was answered by the Prime Minister on the 25th March, 1909. The record of the conversations of Sir E. Grey and the Ambassador has been published in the official *British Documents on the Origins of the War, 1898-1914*, Vol. 6, pages 237 *et seq.*

15. The upshot of these conversations was that the Ambassador had to admit that unusual steps had been taken in collecting materials in advance for two Dreadnoughts before laying them down, and in secretly promising orders to shipbuilding firms for two other Dreadnoughts in advance of Reichstag approval of the Estimates. He declared, however, that these unusual steps had not been taken with a view to accelerating the completion of the ships, but for other reasons, and gave a positive assurance that no more than 13 German Dreadnoughts would be completed before the end of 1912. Sir Edward Grey made a full statement of these explanations and assurances in the House of Commons on the 29th March, 1909, that is, within a fortnight of the First Lord's original statement.

17. In actual fact, the Germans did not complete the ships sooner, but followed throughout the measures which from time to time had been prescribed by the German Navy Laws.

18. The Government statement of 16th March had, however, had an immediate effect in the country. The Government programme of four certain and four provisional ships was regarded with disapproval and a campaign developed in favour of more immediate action. Thus, on the 20th March, 1909, Mr. W. T. Stead wrote demanding two keels for one, and Mr. Wyndham, M.P., spoke at Wigan:—"What the people said was: 'We want eight and we won't wait'."—(*The Times*, 29th March, 1909). A vote of censure was moved by Mr. Lee on 25th March. There was a non-party meeting at the Guildhall on the 30th March, summoned by the Lord Mayor.

19. As a result, in spite of the German explanations and assurances as to acceleration, the Government "after very anxious and careful examination of the conditions of shipbuilding in foreign countries" decided that the four additional ships to be completed by March 1912 should still be laid down. This decision was announced to and approved by the House of Commons on the 26th July, 1909.

20. In point of fact, the laying down of these four ships was essential if we were to get our desired superiority. What this superiority was appears from a speech in the House of Commons by Mr. Churchill on the 19th March, 1912, in which he explained that the actual standard in naval construction which the Government had been following during recent years (a standard which replaced the Two-Power standard) had been a development of a 60 per cent. superiority in vessels of the Dreadnought type over the German navy on the lines of the existing Fleet Law. This was to be a minimum which might have to be increased as our relative superiority in earlier types of battleship was reduced by scrapping.

21. Yet in August, 1914, notwithstanding the construction of the four additional ships in 1909, the position was that we had 20 Dreadnought battleships and 7 battlecruisers against Germany's 14 and 4 built, and 14 and 1 against Germany's 6 and 4 building, a total of 42 against 28, or less than our declared minimum of 60 per cent. superiority.*

* These figures exclude H.M.A.S. *AUSTRALIA* and H.M. ships *N.W. ZEALAND* and *MALAYA*, which were intended to be additional to the 60 per cent.

22. This really ends the story of Mulliner, so far as his connection with the acceleration of the programme of 1909-10 is concerned, but shortly afterwards he became the centre of a violent political controversy which ought perhaps to be briefly mentioned. After the Navy Estimates debate in March, 1909, the Opposition pressed Ministers very hard as to the date at which expansion of Krupp's productive capacity became known to them. An apparent discrepancy between the statement of the Prime Minister and the First Lord was pointed out. The Prime Minister spoke of the expansion as something that had only become known in the course of 1908. The First Lord stated that it was known early in 1906 that Krupp's works were being extended, and that the expansion had been going on continuously since then. Mulliner apparently had felt aggrieved by the neglect to set upon his information and particularly aggrieved that his firm obtained no orders for gun mountings. There seems no doubt that he had communicated his information to the Opposition and it may be due to this fact that his appointment at the Coventry Ordnance Works was terminated. It appears clear that no orders were given to the firm so long as Mr. Mulliner remained managing director. Mulliner complained that he had been victimised and a full statement of his grievances was made in the House of Commons by Mr. Duke (now Lord Merville) on 16th March, 1910. It will be seen, however, that this controversy has little bearing on the question now at issue.

SUMMARY.

23. Mr. Mulliner's information was concerned with Germany's productive capacity, and was corroborated from other sources. He made no statement that Germany's programme was in fact being accelerated, and the Admiralty were not moved by his information to enlarge their shipbuilding programmes in 1906, 1907 or 1908.

The campaign which led to the building of eight Dreadnoughts in 1909 was due chiefly to the retardation of the Conservative programme of 1905 by the Liberal Government in 1906, 1907 and 1908, and to the new German Navy Law of 1908, which increased the rate of replacement of older ships.

Had the four ships not been built, we should have fallen seriously below the superiority which it was the policy of the Government to maintain.

Mr. Mulliner certainly derived no benefit from spreading the information about Germany's capacity as he had left the Coventry Ordnance Works before any orders were placed with that firm.

APPENDIX 1 TO ANNEX VI.

London Office:
30, Broadway, S.W.

Coventry.
11th May, 1906.

General Hadden,
War Office,
Pall Mall.

Dear General Hadden,

Of course I have no right to trouble you about the following, but I thought you would not mind my writing unofficially.

Are you aware of the enormous expenditure now going on at Krupp's for the purpose of manufacturing very large naval guns and mountings quickly?

We have had a great deal to do with Germany lately, and find that Krupp's have filled up the output of all the big machine tool makers for the next year or two.

We estimate that at the present time Krupp's are expending at least a further £3,000,000; this is in addition to the immense works they already possess.

Their whole scheme seems to be speed of production. For instance, they are making immensely powerful lathes which will bore and turn a 12-in. gun simultaneously, which they estimate will save at least one-third of the time.

I also hear that 114 cranes are being made for these extensions.

They seem to have ordered five machines for turning up the roller paths and turntables for very large mountings, each of these machines costing £5,000; there is nothing nearly so good in this country.

These extensions, etc., will give them a possibility of output far in excess of the whole capacity in Great Britain. The scheme must either be immense future requirements for their own country, or that they mean to obtain the whole armament trade of the world outside the few great powers who build for themselves.

Yours faithfully,

(Sd.) H. H. MULLINER.

APPENDIX II TO ANNEX VI.

NOTE BY SIR CHARLES OTTELEY.

Mr. H. H. Mulliner called to see me to-day. He had spoken to General Sir Ian Hamilton of certain matters that he considered to be of national importance and it was at the suggestion of the General that he came to see me as the Secretary of the Committee of Imperial Defence.

Mr. Mulliner is managing director of the Coventry Ordnance Works which have, during the past few years, been established by certain large firms of shipbuilders.

The matters to which he drew my attention were:—

(a) The enormous development of Krupp's works during the past six years.

(b) The fact that Krupp's are largely controlled by the German Emperor.

(c) That they have recently made such arrangements as will enable them to increase their output of heavy guns and mountings at a moment's notice, and in a manner that is at present impossible for us.

The deduction that Mr. Mulliner drew from the above was, that if the Germans suddenly resolved to outbuild us in battleships they would be able to do so, since they would be in a position to arm the ships as soon as they were built. We on the other hand can increase our output of ships but cannot suddenly increase the output of the heavy guns and mountings that are necessary for arming these ships. These guns and mountings are the factors which determine the number of battleships that can be turned out in a given time. Mr. Mulliner said that their construction was entirely in the hands of Elswick, Vickers Maxim and the Royal Arsenal.

Mr. Mulliner, with regard to (a) the development of Krupp's which has taken place of late years, gave me the following figures:—

	At Essen.	At other works.	Total.
In 1902 Krupp employed	25,000 men	20,000 men	45,000
In 1905 Krupp employed	33,000 "	29,000 "	62,000
In 1909 Krupp employed	35,000 "	65,000 "	100,000

As regards (b), . . . he also stated that the Emperor has a personal interest in the firm owing to his grandfather having invested a large sum of money (£500,000) in it.

The firm of Krupp is a joint stock company and is managed by a board of directors. These directors have not the power that is usually in the hands of a similar body in this country. Although trade with Krupp is apparently good this fact is not acknowledged on the annual balance sheets, and the shareholders receive comparatively small dividends. The large profits are presumably absorbed by the expansion that has taken place of recent years in the works.

During these years large orders have been received from Turkey and these orders were entirely due to

the personal influence of the Emperor with the Sultan and gave the Emperor added influence over the firm.

Mr. Mulliner further stated, in support of his contention, that the Emperor controls the finances of Krupp, that whereas Herr Krupp when alive lived extravagantly and expended large sums, his daughter and heiress lives quietly in a villa residence. She is apparently not in possession of the great wealth which she might be expected to have, owing to the profits in the works being diverted to their expansion.

With regard to (c), Krupp's ability suddenly to increase the output of heavy guns and mountings, Mr. Mulliner stated that he himself during the last few years has had occasion to spend much time in Germany. He was sent there by his employers in order to place orders for machinery of a special type only obtainable in Germany, for the manufacture of heavy guns and more especially for their mountings. He found that the firms with which he dealt in Germany had all recently received large orders for similar machinery and he was able to trace these orders to Krupp. He consequently came to the conclusion that Krupp was collecting a much larger amount of machinery of the special type required for the Services mentioned above than they could conceivably require for arming ships and forts in normal times.

Mr. Mulliner emphasised this statement by the assertion that Krupp's maximum output of heavy guns and their mountings was double that of Elswick,

Vickers Maxim and the Royal Arsenal combined, and that the system of gun construction that they adopted as well as the superior type of machinery that they possessed for constructing gun mountings gave them a great advantage over us and enabled them to turn out a gun in one third less time than we could.

He finally stated that in his opinion the German heavy guns were superior to our own being both more durable and more easily handled.

(Intld.) C. L. O.

24th February, 1909.

APPENDIX III to ANNEX VI.

NOTE BY SIR CHARLES OTTLEY.

Mr. Mulliner came to see me again to-day. He wished to add to the conversation that we had on the 24th February a few notes that he possessed with regard to the powers possessed by the Germans of building battleships.

He stated that one of his employees who was recently in Germany and who had tried to ascertain all that he could on the subject considered that each of the following seven shipbuilding yards was capable of building two battleships a year:

Germania, Blohm and Foss, Schikau, Vulkan old yard, Vulcan new yard and the two Royal Dockyards at Bremen and Kiel.

(Intld.) C. L. O.

8th March, 1909.

ANNEX VII

EXTRACT FROM *LIFE OF LORD OXFORD AND ASQUITH*, by J. A. SPENDER and CYRIL ASQUITH. Vol. I, Chapter XX, pp. 252 and 253.

"But from this point onwards two things worked together to compel the Government to look for new sources of revenue. One was the increasing demand for social services, especially the schemes for sickness and unemployment insurance which were now in preparation; the other the growing menace of the German naval competition, which required large increases in our naval estimates. In April, 1908, the German Government introduced a new Navy Law, which in effect increased the annual German programme to four capital ships a year, and made it highly probable that, unless British ship-building was largely increased, Germany might be actually superior to us in capital ships by the year 1914. In these circumstances the Government had either to give up their social programme or to expose the country to the risk of being outbuilt by Germany, unless they saw their way to raise a large additional revenue.

Parties were characteristically divided between these alternatives. Unionists were hot on the scent for an immediate increase of naval armaments, and desired nothing more than that a check should be placed on Radical programmes. Liberals and Radicals who had built high hopes on The Hague Conference and the expected reduction of armaments were at the best reluctant converts to the necessity of an increase of ship construction, and stipulated that in any case their schemes of social reform should not be held up. At the same time the coming of Mr. Lloyd George to the Chancellorship of the Exchequer introduced a new and lively element into

the conduct of finance, and gave a peculiar intensity to the argument which all through the autumn and winter of 1908 and the spring of 1909 went on un- abated behind the scenes as to the proper solution of the problem.

Mr. Lloyd George was for long unconvinced about the necessity of the programme which Mr. McKenna, the First Lord of the Admiralty, backed by his seniors now declared to be imperative, and he was strongly supported in his resistance by Mr. Winston Churchill. The battle raged for several weeks in the Cabinet with threats of resignation on the one side or the other. Mr. McKenna demanded the immediate construction of six Dreadnoughts; Mr. Lloyd George and Mr. Churchill insisted that four were enough. Finally, Asquith himself brought peace by proposing that four should be laid down immediately, but provision be made for the rapid construction of four more beginning from 1st April in the following year, i.e., within the same financial year, or earlier if the need was proved. But even this required an argument which excited the public, and led to a fierce agitation in which all eight were demanded at once. 'We want eight, and we won't wait,' was the slogan of the hour. The Government bowed to the storm, and Mr. McKenna, who had fought his case with great pertinacity, and at one moment came within an inch of resigning, got two ships more than he had originally demanded. As Mr. Churchill puts it, 'a curious and characteristic solution was reached. The Admiralty had demanded six ships, the economists offered four, and we finally compromised on eight.* Asquith's own leanings were to the original six, but he was not at all averse when this queer turn of the wheel made them eight.¹²

ANNEX VIII

W. B. SHEARER.

(ADMIRALTY RECORDS, CASE 2040, CASE 1606.)

At the time of the 1927 Geneva Naval Conference many of the United States newspapers were markedly unsympathetic to the United Kingdom case, and it has been suggested that they were influenced by the activities of Mr. Shearer, an observer paid by some

American firms. The activities of Mr. Shearer at the Conference were investigated by a Sub-Committee of the Senate Naval Affairs Committee in 1928-30.

From press reports, it appears that Mr. C. L. Bardo, President of the New York Shipbuilding

* *World Crisis*, 1911-14, pp. 1368.

Company, informed the Sub-Committee that the Bethlehem Shipbuilding Company, the Newport News Shipbuilding & Dry Dock Company, and his own company, paid Shearer 46,750 dollars for his activities at Geneva and for lobbying in favour of the Merchant Marine Act passed in 1929. Mr. Bardo admitted that Shearer had been paid "altogether too much" for his work at Geneva, and that his reports, which were "bunk" and "cheap talk," contained no information of value which was not in the press. In June, 1930, Senator Shortridge, Chairman of the Sub-Committee, announced in the press that he did not expect to submit a report to the Senate on the inquiry. The hearings of the Committee were to be printed, but Mr. Shortridge was reported as saying that in view of the fact that

Mr. Shearer served only as an observer at the Conference for certain companies by which he was employed, and in addition sought, according to testimony before the Committee, only to bring about naval parity between the United States and Great Britain, there was no occasion for a report to the Senate.

Whatever may be thought of Mr. Shearer's activities, it seems clear that they did not in any way affect the result of the 1927 Naval Conference. The differences between the governments of this country and the United States were of too fundamental a character to have rendered agreement possible at that time, and it was only after a series of discussions and compromises that agreement for a limited period was reached at the London Naval Conference of 1930.

ANNEX IX

EXTRACT FROM A SPEECH IN THE HOUSE OF COMMONS BY MR. BALDWIN ON 22ND MAY, 1935.

"It will be familiar to the Committee that the Government recently introduced and explained certain plans for the strengthening of the national defences, and the way in which the Government have proceeded, if I may once more sketch it briefly, will show clearly how far the technical co-ordination, or perhaps I should rather say the co-ordination in technical matters between the Services, has progressed in the last decade. It will be familiar to all those who have been Members of the Government, and possibly to many others in the House, that the Chiefs of Staffs, in addition to their day-to-day duties, submit every year a report on the condition of the national defences. When they came to make their annual review of the preceding year in October, 1933, they had to make that review in the light of information from the Foreign Office that there had been a marked deterioration in the preceding 12 months in the international situation, and that marked deterioration had coincided with a considerable amount of re-armament on the part of many countries throughout the world, re-armament that could not fail to cause all lovers of peace considerable anxiety.

It was in that light that the report was prepared and the report showed, as everyone knows it would in these circumstances, the serious condition of the accumulated deficiencies—deficiencies that had accumulated during years when it was not only the policy of successive Governments to refrain from fresh commitments in armaments, but it was also a policy that was endorsed by the people of this country at large, who were all of them prepared at that time and in those circumstances to make a real sacrifice of a feeling of unimpaird security in the hope that they might get that disarmament which all our people, and, indeed, many people throughout the world, hoped they might have. This report was considered on presentation, by the Committee of Imperial Defence, and, on the advice of that committee, the Government decided to ascertain the

facts in detail. A small official sub-committee was set up, consisting of the three Chiefs of Staffs, representatives of the Treasury and of the Foreign Office, and the Permanent Secretary of the Committee of Imperial Defence.

Their work, of course, was a work of great detail and of great length, and it was, not unnaturally, discovered, as they approached the close of it, that other considerations had to be reckoned with and accounted for—financial considerations, foreign considerations, and considerations concerned with the disarmament policy of the Government. And so the report prepared by that sub-committee to which I have just alluded was then handed over to a Ministerial Committee, which had existed for some years for the purpose of dealing with disarmament. That Committee was presided over by the Prime Minister, and, subject to two exceptions, it was composed entirely of Ministerial members of the Committee of Imperial Defence. Some of its members had been chairmen of sub-committees of the Committee of Imperial Defence. It was to all effects the Committee of Imperial Defence itself. The technical advisers were the same, the secretary was the same, and most of the members were the same.

To their work that committee gave something like three months of very close and arduous labour, presided over, as I have said, by the Prime Minister until he went to Canada last summer, and for the last month presided over by myself. After reporting to the Cabinet at the end of those months of work, the Committee still remained in session to advise on adjustments that might be needed to meet the changing conditions. That Committee is still functioning now, and has been engaged in very close and protracted examination of the very scheme which I purpose putting before the House to-day."

(Official Report, Vol. 302, No. 100, Col. 362-364.)

ANNEX X

THE MITSUI CASE.

Judgments in the Mitsui case were delivered yesterday (July, 1914), in the Tokyo District Court by Judge Tayama and two associate judges as follows:—

Mr. Iida, one year and six months, with suspension of judgment for three years.

Mr. Yamamoto, one year and six months.

Mr. Iwahara, two years.

Mr. Matsuo, two years.

Mr. Matsuo, three months, with suspension of judgment for three years.

Mr. Kame, three months, with suspension of judgment for three years.

Mr. Hasegawa, four months, with suspension of judgment for three years.

Appeals may be taken within five days. The sentenced Mitsui directors and others have not yet

sent in their appeals, as they have to consult carefully about the matter, but the lawyers have said that their clients would undoubtedly hand in their appeals.

REASONS FOR JUDGMENTS.

The reasons for the judgments given by the Court follow:—

1. In 1910, the Imperial Navy decided to build a large armoured cruiser, afterwards called the Kongo, and gave the Armstrong Company and Vickers Company opportunity to bid for the same. There was sharp competition between the two companies. As a result, in August of the same year, accused Giichi Iida, Kenzo Iwahara, Jotaro Matsumoto, the directors of the Mitsui Bussan Kaisha, and Tsurutaro Matsuo, the engineer and chief of the machinery bureau of the same company, conspired among themselves to

abuse the name of directorship of the company, and issued checks thereby withdrawing the deposit of the company to use it as a bribe to a naval authority. Thus, they planned to get the said order for construction of the war vessel for the said Vickers. The accused Matsuo who had been in the service of the navy, requested Vice-Admiral Matsumoto, the then chief of the bureau of naval construction, to give the order to Vickers, and also told him that he would be given a bribe. Later, the four accused, on 8th November, the same year, had a check for yen 5,000 made in the name of Hachirojiro Mitsui, the president and manager of the said company, as if it were issued properly, and had it cashed by deceiving the bank's clerks, and sent the money to Vice-Admiral Matsumoto at his residence. Then on 17th of the same month, the Vickers Company received the order for the said cruiser from the Japanese Government. The accused, as it was decided that the Mitsui company would get a commission of yen 1,188,730, continued their criminal intentions, and on 8th March, 1911, issued a check for yen 15,000 in the name of Hachirojiro Mitsui and by the same method as before sent the money to Matsuo at his residence. On 30th December, 1911, two checks, each for yen 75,000, were likewise issued and one of them was sent to the branch of Yokohama Specie Bank and the other to the Mitsubishi Bank in Tokyo. Both the checks were deposited in the name of Tsurutaro Matsuo, by deceiving the bank clerks. Two pass books for these amounts had been sent to Matsumoto likewise as bribes, which were accepted by the same.

On 1st July, 1913, a check for yen 233,800 was issued in the name of Iwahara, the director, and was brought to the Mitsubishi Bank and had a pass book issued in the name of Matsuo and sent to Matsumoto as before.

2. When the Siemens affair was made public through the trial of Richter in Germany, Iida, Yamato and Mitsui, fearing that the judicial authorities might examine their books, changed the wordings in them for the aforesaid yen 15,000 and yen 233,800 which had been entered as secret expenses. In this, Kano, the chief cashier of the company, co-operated, and wrote in the books that two sums were paid as temporary payments and made a pay slip for each with Iwahara's seal, so that the payments appeared as loans to Matsuo.

3. Accused Hasegawa, being acquainted with Matsumoto, agreed to destroy evidence against Matsumoto and had the titles for lots which Matsumoto had bought at various occasions in different places transferred to himself. Also he made out various loan agreements and receipts for interest on the loans and had Matsumoto to sign and attach his seal thereto. Also he wrote a promissory note addressed to Matsuo and sent it to Matsuo. He gave the two bonds issued by Matsumoto which he had manufactured as stated before to Matsuo in return for the promissory note, thus attempting to destroy evidence of Matsumoto's taking bribes.

The foregoing are the facts of the case. The judgments then discuss the statutes quoting articles to suit the case, thereby meting out punishment to these accused persons as stated before.

ANNEX XI

AUSTRIA AND THE RE-ARMAMENT OF THE SERBIAN FIELD ARTILLERY, 1903-6.

(Based on *British Documents on the Origins of the War, 1898-1914*. Vol. V, pages 168 to 163. Gooch and Temperley).

In 1903 the Serbian Government decided to re-arm their field artillery. An Artillery Commission was despatched to various countries and eight models were selected. In 1904 a demand was made in Serbia that there should be competitive trials of the guns in that country, and this demand was also pressed by the Governments of some of the countries interested.

"In Serbia itself the demand was probably made from pure motives, but unfortunately it was taken up and utilised abroad, and this interference went so far that the Minister for Foreign Affairs was told that the omission to make such trials was an insult to Serbia."

The Serbian Government agreed to the trials on condition that they could be carried out within eight weeks. In spite of assurances from Austria-Hungary that the sample guns would be allowed to pass, they did not arrive, and the factories reported that the guns had been returned on the plea that they were insufficiently packed. A new government that came into power in May, 1905, then decided that, in view of the impossibility of conducting the trials in Serbia, a Commission should be sent to the various factories.

Shortly after this a new complication arose. In 1905 Serbia and Austria were engaged in negotiations for a new commercial treaty, which was of considerable importance to both countries. The Austrian Government insisted that the granting of a commercial treaty should be conditional on orders

for a number of contracts, including at least part of the new guns, being placed with Austrian firms. In July the provisional trade agreement between the two countries came to an end, and all efforts to bring about an understanding having failed, the general tariff came into force in both countries.

Meanwhile the Artillery Commission had returned, six members having pronounced in favour of Krupp in the first place and Schneider in the second, and four members of Schneider in the first place and Krupp in the second.

"According to the classification schedule Schneider's model obtained the greatest number of 'very good' marks. For this reason the government sent a second Commission to Schneider's factory, and they requested the Minister of War to select for this second Commission officers who were perfectly reliable and correct. The latter reported, after examining the amended Schneider gun, that it was perfectly satisfactory."

It should be mentioned that the opposition in the Skupstina hinted that the government had been induced by pecuniary considerations to choose Schneider's guns, but these insinuations were repudiated by M. Passitch. One story was that M. Passitch had insisted on buying the guns from Schneider because Bulgaria had done so in 1905, and it was important that the weapons of each country should be as nearly as possible the same, and the ammunition interchangeable to facilitate combined action in certain eventualities.

Another point of interest is that in November, 1906, precisely at the time when the Serbian Government had placed their orders for the new guns with the French firm of Messrs. Schneider, they concluded successfully the negotiations for a loan of 85,000,000 francs with a French group.

ANNEX XII

THE STANDARD OF THE BRITISH CROWN SERVICES.

EXTRACT FROM THE REPORT OF A BOARD OF ENQUIRY APPOINTED BY THE PRIME MINISTER TO INVESTIGATE CERTAIN STATEMENTS AFFECTING CIVIL SERVANTS (CMB. 3307/1928).

54. We think in conclusion that we shall not be travelling outside our terms of reference if, as three Civil Servants of some experience and jealous of the

honour and traditions of the Service, we indicate what we conceive to be the principles which should regulate the conduct of Civil Servants—whether engaged in Home Departments or on diplomatic missions—in their relation to the public.

55. His Majesty's Civil Service, unlike other great professions, is not and cannot in the nature of things be an autonomous profession. In common with the Royal Navy, the Army, and the Royal Air Force, it must always be subject to the rules and regulations laid down for its guidance by His Majesty's

Government. This written code is, in the case of the Civil Service, to be found not only in the Statutes but also in Orders in Council, Treasury Circulars and other directions which may from time to time be promulgated; but over and above these the Civil Service, like every other profession, has its unwritten code of ethics and conduct for which the most effective sanction lies in the public opinion of the Service itself, and it is upon the maintenance of a sound and healthy public opinion within the Service that its value and efficiency chiefly depend.

56. The first duty of a Civil Servant is to give his undivided allegiance to the State at all times and on all occasions when the State has a claim upon his services. With his private activities the State is in general not concerned, so long as his conduct therein is not such as to bring discredit upon the Service of which he is a member. But to say that he is not to subordinate his duty to his private interests, nor to make use of his official position to further those interests, is to say no more than that he must behave with common honesty. The Service exacts from itself a higher standard, because it recognises that the State is entitled to demand that its servants shall not only be honest in fact, but beyond the reach of suspicion of dishonesty. It was laid down by one of His Majesty's Judges in a case some few years ago that it was not merely of some importance but of fundamental importance that in a Court of Law justice should not only be done, but should manifestly and undoubtedly be seen to be done; which we take to mean that public confidence in the administration of justice would be shaken if the least suspicion, however ill-founded, were allowed to arise that the course of legal proceedings could in any way be influenced by improper motives. We apply without hesitation an analogous rule to other branches of the public service. A Civil Servant is not to subordinate his duty to his private interests; but neither is he to put himself in a position where his duty and his interests conflict. He is not to make use of his official position to further those interests; but neither is he so to order his private affairs as to allow the suspicion to arise that a trust has been abused or a confidence betrayed. These obligations are, we do not doubt, universally recognised throughout the whole of the Service; if it were otherwise, its public credit would be diminished and its usefulness to the State impaired.

57. It follows that there are spheres of activity legitimately open to the ordinary citizen in which the Civil Servant can play no part, or only a limited part. He is not to indulge in political or party controversy, lest by so doing he should appear no longer the disinterested adviser of Ministers or able impartially to execute their policy. He is bound

to maintain a proper reticence in discussing public affairs and more particularly those with which his own Department is concerned. And lastly, his position clearly imposes upon him restrictions in matters of commerce and business from which the ordinary citizen is free.

58. Between the regular investment or management of a private fortune on the one hand, and speculative transactions in stocks, exchange or commodities on the other, there are obviously numerous gradations, and it may often be difficult to draw the precise line of demarcation between what is lawful and what is prohibited; it may even be inadvisable to make the attempt, because many things, though lawful, may yet be inexpedient. But some transactions fall indubitably on one side of the line rather than upon the other. It might well be desirable for a Civil Servant in all circumstances to avoid transactions wholly speculative in character; but where he is employed in any Department to which, whether rightly or wrongly, the public attribute the power of obtaining special information, such as the future course of political or financial events likely to affect the rise and fall of markets, then we assert unhesitatingly that participation in such transactions is not only undesirable or inexpedient but wrong. The knowledge that Civil Servants so employed are engaged in them could not fail to shock public confidence at home, and, especially if matters of foreign exchange are involved, to produce a deplorable effect upon opinion abroad.

59. We content ourselves with laying down these general principles, which we do not seek to elaborate into any detailed code, if only for the reason that their application must necessarily vary according to the position, the Department and the work of the Civil Servant concerned. Practical rules for the guidance of social conduct depend also as much upon the instinct and perception of the individual as upon cast-iron formulas; and the exact guide will, we hope, always be found in the nice and jealous honour of Civil Servants themselves. The public expects from them a standard of integrity and conduct not only inflexible but fastidious, and has not been disappointed in the past. We are confident that we are expressing the view of the Service when we say that the public have a right to expect that standard, and that it is the duty of the Service to see that the expectation is fulfilled.

We have, etc.,

(Signed) N. F. WARREN FISHER,
MALCOLM G. RAMSAY.
M. L. GWIER.

Treasury Chambers,
Whitehall, S.W.

25th February, 1928.

ANNEX XIII

BRITISH ARMAMENT FIRMS AND THE BOLIVIA-PARAGUAY WAR.

(Memorandum prepared in the Foreign Office.)

The statement of evidence submitted by Mr. Fenner Brockway, on behalf of the Independent Labour Party, to the Royal Commission on the Private Manufacture of and Trade in Arms contained the following passage:—

"(b) British armament firms have prolonged the war between Paraguay and Bolivia, despite the 'outlawing' of this war by the League of Nations, by supplying war material to both sides.

According to the British Government's returns, 2,130,550 rounds of ammunition were exported to Bolivia between January, 1932, and June, 1933, and 16,570,000 rounds to Paraguay. In addition ninety-nine machine guns and six tanks were exported from Britain to Bolivia."

In connection with this statement attention may be drawn to the following facts:—

1. PERIOD COVERED BY STATEMENT.

The figures quoted apply only to a limited period which must be set in perspective against the historical background of the dispute.

The first serious incidents arising out of the gradual advance of Paraguayan and Bolivian outposts into the disputed territory of the Chaco occurred in February and March, 1927, when a Paraguayan patrol was captured at the Bolivian outpost of Sorpres. More serious incidents occurred in December, 1928, in the neighbourhood of Forts Vanguardia and Boqueron. The real outbreak of hostilities dates from June, 1932, when a Bolivian detachment occupied the Carlos Antonio Lopez Fort after driving out the small Paraguayan garrison. From this time on hostilities continued intermittently, the original isolated incidents gradually degenerating into general acts of hostility on a considerable scale. War was formally declared (by Paraguay) on the 10th May, 1933, and continued, except for the armistice which was proclaimed (30th December, 1933—6th January, 1934) at the time of the visit of the League of Nations Commission to the scene of hostility, until the signing of a truce at Buenos Aires on the 12th June, 1935.

It was accordingly only during the last two months of the period mentioned in the Independent Labour Party statement that the two countries were formally at war.

* Minutes of Evidence 5th Day, Appendix, p. 158.

2. POSITION OF ARMAMENT FIRMS.

Under the Arms Export Prohibition Order, 1931, armament firms in the United Kingdom are debarred from exporting arms except under licence. That being so, no responsibility can be attached to them. The responsibility (if any) for allowing export to take place must rest with His Majesty's Government, who issue the export licences.

3. ACTION TAKEN BY HIS MAJESTY'S GOVERNMENT.

His Majesty's Government have shown their sense of this responsibility in the initiative which they have taken with a view to securing the general enforcement of an embargo on the supply of arms and war materials to Bolivia and Paraguay. The first suggestion as to the desirability of such an embargo was made on the 26th November, 1932, when at a meeting of the Council of the League of Nations it was pointed out that both belligerents were entirely dependent on foreign sources for their supply of arms. Though no actual request for action was made by the League the matter was at once taken up by His Majesty's Government in the United Kingdom, who entered into discussions with the United States Government and subsequently with the French and Italian Governments. On the 26th February, 1933, His Majesty's Government addressed to the Secretary General of the League a memorandum, indicating that the Governments of France and the United Kingdom were agreed in requesting that the Council should study the measures which, in application of Article XI of the Covenant, might be proposed with a view to preventing the supply of arms and war material to Bolivia and Paraguay. All the members of the Council accepted this proposal in principle, subject to certain conditions, and it was agreed that aircraft and aircraft motors should be included in the categories to be prohibited. It was found, however, that there were various practical difficulties in the way of bringing about the general enforcement of the prohibition and further efforts to achieve this end were eventually suspended, in view of the agreement of the belligerents (obtained on the 3rd July, 1933) to the dispatch of a League Commission to the Chaco to investigate the dispute on the spot and to endeavour to effect a settlement.

The Commission's efforts proved unsuccessful, and it was obliged to return to Europe. On the 11th May, 1934, it submitted to the Council its report and recommendations. In this document attention was again drawn to the fact that both belligerents were dependent upon supplies from abroad. His Majesty's Government again took the initiative, and at a meeting of the Council on the 17th May, 1934, the United Kingdom representative urged that the arms embargo proposal, made by His Majesty's Government in the previous year, should be taken up again at once. His Majesty's Government had, meanwhile, decided early in May to issue no further licences for the export of war materials to the belligerent countries; they accordingly issued no licences for such exports after the 9th May, though the export of a few consignments sanctioned by licences granted prior to that date was allowed. On the invitation of the President of the League Committee of Three, thirty-four states expressed their readiness to accept the embargo proposal in principle. His Majesty's Government made every possible effort, by representation at the capitals concerned, to accelerate the coming into force of the embargo; but it was not until the 29th September, 1934, that the actual enforcement of the embargo by all the European arms producing countries was obtained. The United States Government had for their part imposed an embargo on sales of war material to the belligerents on the 26th May. The Japanese Government, whose co-operation had also been sought, felt unable to participate in any political activity of the League, but explained that Japan had in fact never exported arms intended for Bolivia or Paraguay. Two or three of the South American countries approached by the League have never actually put

into practice the necessary measures for the enforcement of the embargo. None of these countries, however, manufacture arms. Endeavours to persuade the governments of the countries adjacent to the belligerents to extend the embargo to cover transit as well as the supply of arms have met with no success.

His Majesty's Government continued to enforce the embargo against both countries until the 6th February, 1935, when it was decided on the recommendation of the Advisory Committee (please see Section 4) to raise it in so far as Bolivia was concerned. The embargo against Paraguay remained in force until the 10th July, when it was suspended as a result of a recommendation by the President of the Advisory Committee that in view of the signature at Buenos Aires on the 12th June of an armistice between the belligerents and the subsequent convocation of a Peace Conference all measures of discrimination between the two Powers should be discontinued.

4. THE ATTITUDE OF THE LEAGUE OF NATIONS.

The attention of the League was first drawn to the Chaco dispute by the incidents of December, 1928, though no appeal to the League was made by either belligerent until May, 1934. Ever since the former date it has however given its constant attention to this dispute, at first in a purely supervisory capacity under Article IV, paragraph 4, of the Covenant. On the 6th March, 1933, the dispute was placed on the Agenda of the Council, under Article XI, by the Committee of Three (which had been set up on the 23rd September, 1932, to follow it). Finally, after the Bolivian Government's appeal to the League on the 31st May, 1934, the dispute was dealt with under Article XV. On the 24th November, 1934, the Assembly adopted a report under paragraph 4 of Article XV in which it was stated, *inter alia*, that "for several months, hostilities continued without either of the parties appealing to the League of Nations either under Article XI or under Article XV. The Assembly is therefore bound to record that neither of the parties has fulfilled its undertakings under Article XII of the Covenant." Moreover, Part 5 of the report contained the following passage:—

"The Assembly, having regard to the exceptional circumstances of the present case, and without in any way creating a precedent, approves, as one of the measures to attain and maintain the cessation of hostilities, the prohibition of supply of arms and war material to Bolivia and Paraguay." Finally an Advisory Committee was set up under the terms of the report "to follow the situation, more especially as regards the execution of the Assembly's recommendations for the settlement of the dispute, and to assist the members of the League to concert their action and their attitude among themselves and with non-member States, more particularly as regards the most effective application, modification, or withdrawal of the prohibition of the supply of arms referred to in Part 5, and to make any proposals it may think desirable in this connection." Acting under the terms of its mandate this Committee has met from time to time to report on the course of the dispute and to make recommendations as to the action to be taken by the members of the League.

5. CONCLUSION.

It will be seen from the above that it is unfair to place any responsibility for the prolonging of the war between Bolivia and Paraguay upon British armament firms. Such arms as they exported to the belligerents were exported under licences obtained from His Majesty's Government. The latter, moreover, far from encouraging the export of arms, were the first to suggest an embargo and actually imposed it themselves without awaiting similar action by other governments. In so far as the war was "outlawed" by the League of Nations, such action (in the form of approving the embargo) was taken some considerable time after His Majesty's Government had already imposed an embargo and when the supply of British arms to the belligerents had already ceased.

August, 1935.

APPENDIX B

NEUTRALITY.

CONVENTION No. XIII.

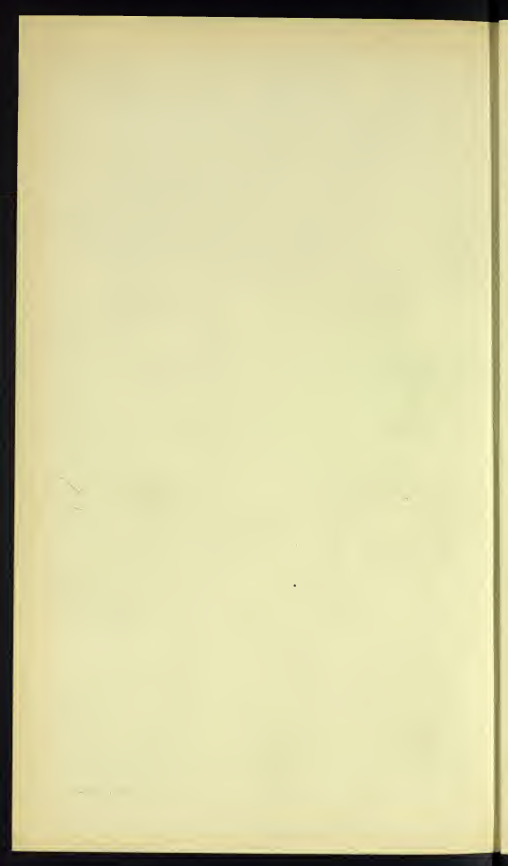
CONVENTION CONCERNING THE RIGHTS OF NEUTRAL POWERS IN MARITIME WAR.

Article 6.

La remise à quelque titre que ce soit, faite directement ou indirectement par une Puissance neutre à une Puissance belligérante, de vaisseaux de guerre, de munitions, ou d'un matériel de guerre quelconque, est interdite.

Article 7.

Une Puissance neutre n'est pas tenue d'empêcher l'exportation ou le transit, pour le compte de l'un ou de l'autre des belligérants, d'armes, de munitions, et, en général, de tout ce qui peut être utile à une armée ou à une flotte.



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OF AND TRADING IN ARMS

INDEX TO PUBLISHED
MINUTES OF EVIDENCE

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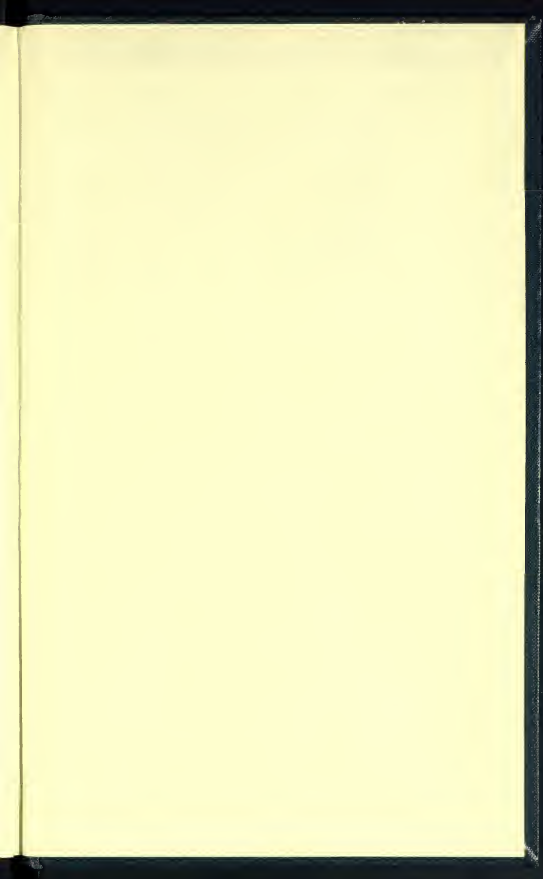
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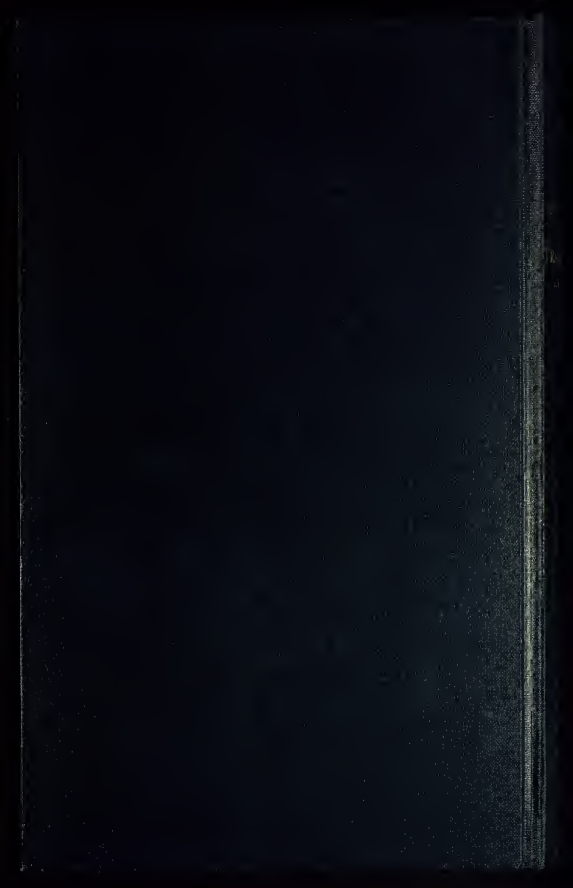
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PRIVATE
MANUFACTURE
OF AND
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